



KRONOS LONGEVITY RESEARCH INSTITUTE

Research to promote a longer healthier life for you, your children, and your grandchildren.



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EXERCISE... DO I HAVE TO?

Do I really have to exercise? Haven't you discovered a pill for that yet? As the Exercise Sciences Director, I often get asked, "What are the benefits of exercising?" The simple answer is there are many. Regular exercise can provide you with several important health benefits including reducing your body fat and improving your appearance. Exercise also may help maintain your mental health and reduce your risk of death. Most of us want to look good, feel healthy and live longer. We know that regular, vigorous exercise is one of the most effective ways to achieve these goals. Still, about two-thirds of the U.S. adult population are not regularly active and about a fourth do not exercise. There is a joke about hopping in the car to run down the driveway to the mailbox and this is not far from reality. We drive everywhere, and when we reach our destination, we drive around the parking lot for 10 minutes just to find that prize parking spot 25 yards closer to the front door. Or worse we take a crowded escalator up one flight at the mall when the adjacent stairs are empty. Our remote

ancestors walked many miles per day, ran frequently (sometimes for their lives), and lifted heavy weights (animal carcasses, rocks, bales of hay); the human body evolved to perform rigorous exercise daily. The current American lifestyle does not provide the human body with sufficient physical exercise to maintain its health. Our bulging waistlines, high rates of adult onset diabetes, high blood pressure and early heart disease are the living proofs.

We know that exercise is "good for us" and that we should be doing it; but why? Here are just a few reasons:

Reason #1: Improve your health - A number of significant health benefits can be achieved through regular physical exercise. Scientific studies show that people who exercise regularly have lower risks of heart disease, high blood pressure, colon cancer and diabetes. Exercise helps

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DIRECTOR'S MESSAGE

This is the first issue of the KLRI Longevity Kronicle. We hope that you, our readers, will find it useful. First, we hope that the information we present will help keep you up-to-date on the best strategies - based on data from peer-reviewed, published scientific experiments for preventing the onset of age related diseases such as adult-type diabetes, heart attacks, osteoporosis, and other problems related to aging, such as loss of muscle mass and strength (a problem referred to by aging specialists as "sarcopenia"). Second, we hope to inspire you to actually pursue strategies in your own life that will lead to optimal health and longevity. Lastly, we want to keep you up-to-date on our KLRI research contribution to state-of-the-art longevity medicine and enlist your support for our efforts.

It is important to understand that, contrary to what you may have seen on TV, heard on the radio, or read in newspapers and magazines, there is no "magic bullet," no pill that you can take or tonic you can drink, that will reverse aging or keep you young forever. The folks who tell you otherwise are interested in only one thing, separating you from some of your hard-earned cash. However, there are measures you can take today that can decrease your risk of age-related chronic diseases and make you feel and look better and younger. Some of these are simple and easy to do, but many require some determination and self-discipline. Some strategies are well proven, whereas for others, there is reason to believe they may be helpful, but the evidence is not conclusive.

In this issue of our newsletter, we are stressing the value of exercise. Exercise falls into the category of well proven, but requiring real effort. As you will glean from reading the article in this issue by our KLRI Exercise Sciences Director, Dr. Taylor Marcell, the benefits of exercise are many and the risks are trivial, provided you take care to perform techniques correctly to prevent injury, and do not overdo. A member of our KLRI Scientific Advisory Board, Dr. Kerry Stewart, an exercise scientist and expert in cardiac rehabilitation at the Johns Hopkins School of Medicine, has said, "If exercise could be put into a pill in a bottle, it would be the single best anti-aging medicine ever."

However, we also know that, although people who exercise regularly and vigorously have strength and function far greater than those who do not, active master athletes still lose muscle mass and strength as they age. It will be important to learn why this happens and, more importantly, what can be done about it. Only solid scientific research can solve these pressing problems. KLRI plans to be in the forefront of research on sarcopenia. We are particularly interested in how age-related changes in hormones and effects of oxygen free radicals* interact to cause loss of muscle fibers. There is evidence that both these mechanisms are important.

Based on evidence from basic science studies in animals, cell cultures, etc., KLRI scientists will perform translational studies in humans to learn what interventions will most likely help preserve muscle mass as we age. Translation, the process of carrying promising findings from "the bench to the bedside," is the greatest challenge in health science research and represents a bottleneck in making the findings of science useful to real people. The KLRI mission, to perform cutting-edge translational research in aging, is what makes our institute unique. We hope you will join us in our efforts to solve the puzzle of aging and improve human health and longevity.

S. Mitchell Harman, MD, PhD
Director and President, Kronos Longevity Research Institute

** Oxygen free radicals are reactive molecules formed in our cells as a byproduct of "burning" our fuel to make energy. They can damage functional molecules in cells and are thought to be an important cause of aging.*

lower your total blood cholesterol and triglycerides while raising your HDL ("good cholesterol") levels. Regular participation in physical activity appears to reduce depression and anxiety, improve mood and even enhance sexual function (in both men and women).

Reason #2: Improve your appearance -

Increased body weight is a common occurrence during normal aging. It is not often appreciated that this change in body weight occurs due to both an increase in body fat and a loss of lean body mass (muscle). Most adults can expect to lose about one-half pound of muscle per year after age 20, while gaining on average 1 lb of fat per year. At that rate, a typical 25-year-old man would lose 20 lbs of muscle and have gained 40 lbs of fat by the time he is 65. However, he would only weigh 20 lbs more than he did in college! (Remember 1 lb of butter = 1 lb fat and think, that is 40 slabs of butter). Therefore, do not be fooled by the scale. You need to determine what your body composition truly is and work towards reducing your body fat and increasing your muscle mass through regular exercise and wise food choices. Regular aerobic exercise can help burn those extra fat calories while weight training can help maintain your muscle mass. We all need to do both.

How do you determine if your body weight is too high? One way to predict body composition is by your Body Mass Index (BMI). BMI is determined by dividing a person's weight in kilograms (weight in lbs divided by 2.2) by the square of their height in meters (height in inches X 0.254); $BMI = \text{Weight}/\text{Height}^2$. Example: A person who weighs 165 lbs. (75 kg) and is 5'9" tall (1.75 m) has a BMI of 24.5. Individuals with a BMI of 25 to 29 are considered overweight, while a BMI of 30 or more is considered obese. According to the National Institutes of Health, all adults (ages 18 years and older) who have a BMI of 25 or more are considered at risk for premature death and disability. A recent article in The New England Journal of Medicine demonstrated that these health risks increase as obesity increases, a strong argument to reconsider our diet.

Reason #3: Improve your mental function -

Regular exercise increases your sense of well being by providing you with more energy, better sleep, improved ability to cope with stress and increased mental perception. Exercise also enhances your social life by improving your self-image and attitude, increasing your opportunities to make new friends and increasing shared activity options with friends and family.

Reason #4: Live independently -

Most older people fear losing their independence. It is estimated that 40% of all nursing home admissions occur following a fractured hip as a result of a fall. As we age, the loss of muscle mass also leads inevitably to a reduction in strength that decreases our ability to avoid falling, and makes normal daily activities more difficult. Regular exercise helps maintain our strength and function, improving our ability to perform daily tasks throughout our life span.

Reason #5: Decrease your mortality risk -

Regular exercise is considered as important to decreasing your risk of heart disease as reducing your cholesterol, blood pressure, body weight or quitting smoking. According to the President's Council on Physical Fitness and Sports, vigorous exercise involves minimal health risks for persons in good health or those following a doctor's advice. In fact you are at far greater risk by being inactive and overweight than you are by participating in an exercise program. Additionally, scientific evidence indicates that physical activity can extend years of active independent life, reduce disability and improve the quality of life.

By now we hope you are saying, "Alright, alright, I know I should exercise, but what should I do?" Simply stated, any exercise is good exercise, and the more exercise you do, the greater the benefits. The increasing benefit of doing more exercise is termed the "dose response" and can be viewed as a continuum from getting off the couch and walking to the TV to change the channel to running 3 miles four or five times

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weekly. Any exercise helps improve your fitness and a structured vigorous exercise program will help you reach your optimal health. But how much (and what kind) is optimal? The individual ingredients of a regular physical exercise program vary but should include the **F.I.T.T.** Principle:



- **F**requency - You should exercise several days per week, spending time involved in both aerobic (walking, running, swimming, dancing, etc.) and strengthening exercise (lifting weights). Some health benefits can be obtained even with less frequency and sport-specific training might require more work.
- **I**ntensity - How hard you should exercise can be based on your individual target heart rate zone. During aerobic exercise, you should keep your heart rate at approximately 65% of your predicted maximal heart rate (predicted max HR is calculated as: $220 - \text{Age}$) for at least 20-30 minutes. For strengthening exercises, we recommend the "Goal/Rep System" as a way to judge how much weight to lift for each body part. You may want to consult a local personal trainer to help determine the appropriate intensity for you, and, if you're over 45, consult your physician before beginning any rigorous exercise program.
- **T**ime - The amount of time you spend performing aerobic, resistive and flexibility exercise is also dependent upon how often (Frequency) and how hard (Intensity) you choose to exercise. However, for optimal results we suggest performing your aerobic and strength training on alternate days to maximize muscle recovery and potential.
- **T**ype - The "type" of actual exercises you choose will depend on your goals and the component of fitness you are improving (body composition, cardiorespiratory endurance, muscular strength,

muscular endurance, or flexibility). The choices are many, and to some extent represent individual taste. However, you should try to do something you will enjoy. Taking classes like aerobic dancing or "spinning" with other people and an instructor help provide motivation and make the experience more enjoyable for some people, whereas tennis, racquetball and team sports work well for others. Still others prefer the singular pleasures of jogging or swimming. They are all good, so find out what works for you, and then stick with it!

To summarize, regular exercise improves your cardiorespiratory endurance (fitness), reduces the risk of heart disease and even enhances your appearance, mood, and function. Muscular conditioning and increased muscle mass help maintain strength and posture, reduces the risk of lower back injury, and help maintain the ability to perform general daily activities as we grow older. Finally, flexibility exercise maintains and improves joint range of motion and reduces the risk of injury and muscle soreness. All are important aspects of a fitness program. The key is to begin a regular structured exercise program. Your body will thank you through improved function and enhanced longevity. At KLRI we are very interested in understanding the benefits obtained by exercise and we conduct state-of-the-art research on how exercise might affect longevity and improve health.

Dr. Taylor Marcell, PhD, ATC, is the Exercise Sciences Director at the Kronos Longevity Research Institute (KLRI) in Phoenix, Arizona. He holds a doctoral degree in exercise physiology with special emphasis in understanding the causes of age-related loss of muscle mass and strength (sarcopenia). Dr. Marcell has published scientific articles on aging, performance and muscle loss.

You make a difference!

PARTICIPATE IN A KLRI STUDY

Currently, we are recruiting for the following studies:

- ✓ Validation of Oxidative Stress Assessments. The objective is to characterize and validate laboratory methods for assessing oxidative stress. Qualification and time requirements for this study are simple. The qualifying age range is healthy men and women ages 20-89. The time required is a five-minute phone interview and, if you qualify, about three hours at the KLRI Clinic.
- ✓ Omega-3 Fatty Acids and Endocrine/Immune Dysfunction in Humans. The objective is to examine the effects of a diet high in omega-3 fatty acids on the endocrine dysregulation of normal aging. The qualifying age range is healthy men and women ages 60-75. The time required is a five-minute phone interview, as well as a fish-enriched diet plus nutritional supplements for 18 weeks and time at the KLRI Clinic.

- ✓ Coenzyme Q10 and Myocardial Function in Patients on Statin Drugs. The objective is to determine whether the use of hMG-CoA reductase inhibitors (statins) compromises myocardial reserve and if coenzyme Q10 supplementation can reverse this effect. The qualifying age range is healthy men and women ages 45-70 with hyperlipidemia requiring initiation of statin therapy. The time required is a five minute phone interview and the study duration is 30 weeks, with visits to the KLRI Clinic in 10 week increments.

To participate in a study, please call SP Services at (602) 778-7480. Compensation for time and travel varies per study.

We thank you!

We thank the many people who have registered to participate in studies at KLRI. A special thanks to those who have completed a research study.

STUDY FOCUS

Omega-3 Fatty Acids and Endocrine/Immune Dysfunction in Humans: Omega-3 fatty acids are polyunsaturated fatty acids found in certain natural foods, especially fish, like salmon and tuna. They are known to help protect against heart disease. Animal studies have shown that omega-3 fatty acids may help hormone signals get into cells whose outer layer (cell membrane) has been stiffened by age. KLRI studies examine the effects of a diet high in omega-3 fatty acids on the loss of normal hormone balance that occurs during normal aging.

DIRECTOR'S FORUM

The Director's Forum gives you direct access to the scientific faculty at KLRI. Also, an event will be held to communicate the latest scientific discoveries in longevity research, study status and potential studies being considered. The industry's update also will include information on government issues that may affect the progress of longevity research.

The Forum is comprised of our valued friends and supporters. We welcome our latest members to our Director's Forum:

- Esperanza "Hope" Lucatorta
- Darrell & Verla Atwell
- Charles & Bobbie Chapman
- Marjorie "Casey" Cole
- Robert DeVoy
- Denise Brown
- Jane Heilman
- Beverly & Joseph Sandberg
- Tim Shanley
- Monty Stewart
- Frank Zampino

To join our Director's Forum, please call (602) 778-7499.

DONATE NOW!
BE A PART OF KLRI'S MISSION

You make a difference; longevity research is vital to all of us. Everyone benefits. All donations will directly benefit research; KLRI's administrative costs are funded. KLRI is a not-for-profit organization, all gifts are tax deductible. KLRI accepts individual and corporate contributions, planned giving and major gifts. Your donation will be recognized at KLRI. Research changes the world; we cannot find cures for chronic diseases or learn to live healthier, longer lives without research. Remember, the inquisitive scientific minds contribute to your lifestyle every moment. For questions or to donate, please call (602) 778-7481.



WHY IS LONGEVITY RESEARCH IMPORTANT?

A FEW OF OUR CONCERNS

- **The elderly population is rapidly increasing.** The number of Americans 65 and older will more than double from 35 million today to 70 million by 2030.
- **The healthcare industry is ill equipped to manage the "senior boom."** Of the 650,000 licensed physicians practicing in the United States, fewer than 9,000 are certified in geriatrics.
- **The cost for adequate healthcare is steadily increasing.** If elderly healthcare costs were reduced in 2000 by just 10 percent, savings by the U.S.

government would have exceeded \$50 billion. By 2020, the potential savings could be about \$134 billion.

- **Learning versus treatment.** Gerontology is the comprehensive study of aging and the problems of the aged. Geriatrics is a branch of medicine that treats the problems and diseases of old age and aging people.

Clearly, longevity research is vital to ensure that we lead longer, healthier lives. Increasing funding for disease and disability research is not enough. We have already learned prevention

is critical to our longevity, but we need to learn more about what it takes to "age healthier."

The body's composition is a scientific wonder of which there is so much to learn. And we can only learn through research that will benefit the entire human race not just a small population. Longevity research will benefit all. A healthier human life is our greatest asset. Each day we learn more about the capabilities and function of the body. Millions of research dollars are spent seeking cures to many diseases and few are spent on aging research aimed to reduce common age-related diseases.

In the Next Issue...

Hormone Replacement Therapy in Menopausal Women

In our next issue of the Longevity Kronicle, Dr. S. Mitchell Harman, Director and President, will provide his perspective on the current controversy regarding use of hormone replacement therapy (HRT) with estrogen or estrogen and progestin in menopausal women. What did the new studies really show as opposed to what it has been claimed they show? What are the possible reasons? These controlled prospective studies produced results so diametrically opposed to those observed during more than 20 years of previous careful epidemiological studies? Finally, how should individual women decide what to do now, given the current uncertainties, and what kind of research will be required to clear up the fog of doubt? Dr. Harman is an internationally recognized expert in the area of hormones and aging, and has some unique qualifications and insights into this issue, having been involved as an advisor during the planning stages of some of the recent NIH-sponsored studies. Look for this feature in November.



Who we are!

Kronos Longevity Research Institute (KLRI) is a not-for-profit, 501(c)(3) organization conducting state-of-the-art clinical translational research on the prevention of age-related diseases and the extension of healthier human life. KLRI tests new strategies to detect and prevent chronic diseases associated with aging and investigates the effects of innovative interventions to slow the aging process and improve health outcomes for older persons. In addition, KLRI helps the medical and lay communities understand important aging issues. KLRI research findings support a healthier quality of life and a robust lifestyle in our senior years.

KLRI also performs research to increase our healthy years by improving muscle strength, understanding the role of various nutritional components in our diets, and achieving a better grasp of human aging physiology.

There are many anti-aging remedies and recommendations on the markets today. However, most lack scientific evidence, while having potential side effects. We need reputable scientific organizations to spearhead research to further our understanding of treatments developed to increase our healthy years. Our world-renowned scientific team is comprised of experts in their fields, who are conscience driven to

perform at their highest potential to ensure that all research projects are safe, carefully performed and accurately communicated. The KLRI studies performed differ from those of many narrowly focused institutions because we have a wide range of scientific expertise and our focus is on aging itself rather than a single disease.

OUR MISSION

To perform and foster clinical translational research aimed at healthier human longevity and communicate results to the professional and lay communities.

OUR GOVERNANCE

A distinguished board of directors, with a unique mix of scientists, longevity specialists, and community leaders govern KLRI. There is also a scientific advisory board of recognized international experts in medical and scientific fields, including nutrition, exercise, hormones, bone and joint diseases, cancer, and heart disease.

WHAT IS AGING?

We see the effects of aging on a grand scale (i.e., graying hair, wrinkling skin, and the development of chronic diseases.) We see these effects on a macro level because they are visible to the eye, when actually, they occur on the molecular level. Regardless of the species,

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GLOSSARY ABC

AGING - A gradual and relentless process by which sexually-reproducing organisms lose their youthful capacity for homeostasis. Aging doesn't normally begin until the completion of a characteristic interval of reproductive competence during which a species rears its progeny to independence. As a result of aging, older organisms are increasingly vulnerable to a wide variety of age-related diseases, ultimately culminating in their death. The tradeoff between aging and repair processes is extremely complex and observed to operate systematically within a hierarchy of at least seven different interacting levels: (1) molecules; (2) organelles (small membrane-bound cellular components with specialized functions); (3) cells; (4) tissues of various architectures; (5) organs; (6) organ systems; and ultimately (7) the entire organism. Aging occurs silently from within, in the same sense that termites, if unchecked, will ultimately destroy the structural integrity of a large wooden house.

GERONTOLOGY - A branch of biology focusing on the common mechanisms of aging across all multicellular species. Gerontologists, for example, are keen to understand species that appear to exhibit very gradual or negligible senescence over a long time interval. In this context, gerontologists may study yeast, worms, fruit flies, mice, rock fish, tortoises, bats, parrots, humans, and other creatures exhibiting exceptional longevity.

LEAN BODY MASS (LBM) - the amount of total body substance which is not fat (bone, muscle, etc.)

STATIN - a family of drugs (e.g. Simvastatin®, etc.) which block cholesterol production and lower blood cholesterol, used by millions of persons with high cholesterol levels.

TRANSLATIONAL RESEARCH - Clinical investigation with human subjects (patients or normal volunteers) in which knowledge obtained from basic research with genes, cells, or animals is translated into diagnostic or therapeutic interventions that can be applied to the treatment or prevention of disease or frailty.

Many of the terms above are taken from Kenneth W. Wachter and Caleb E. Finch, Eds., Between Zeus and the Salmon: The Biodemography of Longevity, pp. 269-274 (National Academy Press, Washington, D.C.; 1997).

ASK THE DIRECTOR

Dr. Harman, why should I participate in clinical translational research on aging?

There are a variety of reasons. In some cases, the individual wants to make a difference in medical research because he/she has an interest in a study or has experienced a disease that has no generally accepted therapy, or available therapies are only partially effective. Others want to contribute to research efforts that may help others in the future. Participating in translational research offers individuals the opportunity to advance a novel scientific idea into the clinical environment where it may be of real benefit to many people. Finally, people may volunteer for research studies because they are survivors of a disease and want to do all they can to help prevent that disease in others.

Dr. Marcell, is walking in the mall good enough?

Any exercise is good. Walking can provide benefits to the heart, joints, and muscles by being active. However, to affect one's body composition and gain additional health benefits, I suggest the addition of weight lifting exercises to strengthen the body, reduce the risk of falls, and maintain independence.

To Ask the Director please submit your question via email to info@kronosinstitute.org or write to 4455 E. Camelback Rd., Suite B-135, Phoenix, AZ 85018.



Who we are! continued from page 7

a vicious cycle of damage occurs, which results in declining system function and ultimately leads to the deterioration of the organism. The body does implement natural repair mechanisms in an attempt to repair damage at the nuclear and mitochondrial levels. However, the rate of repair cannot keep up with the rate of damage.

So exactly, what is aging? We don't know yet!!! Hence, the Kronos Longevity Research Institute.

KLRI's 2002 Symposium - A Huge Success

KLRI's second annual Basic Science & Clinical Gerontology Symposium, "Sarcopenia - Age-Related Muscle Loss: Causes, Consequences, & Prevention" held June 7, 2002, in San Diego, was an outstanding success.

A panel of leading experts on the subject of muscle loss (sarcopenia) and frailty with age presented a wide array of discussion about our current scientific understanding of this important phenomenon and what clinical interventions might prevent or ameliorate sarcopenia. Scientists, doctors, and others interested in the important age-related issue of muscle loss attended the symposium. The consensus was exercise! Of all the various mechanisms that may contribute to muscle loss,

including the loss of anabolic hormones with age, lack of regular, vigorous exercise is almost certainly the factor that contributes most to the loss of muscle and, eventually, loss of independence. In this issue of Longevity Kronicle, we have focused our attention on exercise guidelines to encourage you to begin (and/or stick with) an effective exercise program.

The next conference in our Biomedical Gerontology Symposium series will be on: "Diet, Health, Aging and Longevity; Good Fat, Bad Fat," and will be held February 5-7, 2003. A preview of the schedule for the symposium is on page 11 of this issue. We look forward to seeing you there.



Bottom: Kevin Yarasheski, PhD, Ronnen Roubenoff, MD, Elisabeth Barton, PhD, Robert Wiswell, PhD. Top: Stephen Welle, PhD, Christiaan Leeuwenburgh, PhD, Taylor Marcell, PhD, Shalender Bhasin, MD, John Holloszy, MD

Calendar of Events (2002 – 2003)

OCTOBER 10 **DIRECTOR'S FORUM AND RECEPTION**

Speaker: Dr. Taylor Marcell
Topic: Exercise and Frailty
Location: Kronos, the Optimal Health Company -
Kierland Commons

OCTOBER 11 **PROFESSIONAL EDUCATION SEMINAR***

Speaker: Greg Fahy, PhD
Topic: Organ and Tissue Replacement Using
Cryopreserved Substitutes
Location: KLRI

OCTOBER 24 **HEALTH FAIR**

Location: Manzanita Senior Center, City of Phoenix
3581 W. Northern Road 602-262-4949

NOVEMBER 10 **PRIVATE DINNER & CONCERT** **FEATURING RAY CHARLES***

Location: Celebrity Theatre

DECEMBER 6 **PROFESSIONAL EDUCATION SEMINAR***

Speaker: Gabriel Fernandes, PhD
Topic: Aging, Immune Cell Function,
and Nutritional Factors
Location: KLRI Office

DECEMBER 20 **PROFESSIONAL EDUCATION SEMINAR***

Speaker: Jim Joseph, PhD
Topic: A Nutritional Approach to Turning Back
the Ravages of Time
Location: KLRI Office

FEBRUARY 5-7 **PROFESSIONAL EDUCATION BIOMEDICAL** **GERONTOLOGY SYMPOSIUM***

Topic: Diet, Health, Aging and Longevity:
Good Fat, Bad Fat
Location: The Wyndham Buttes

Professional Education*

Programs designed to educate practicing physicians and other healthcare providers to increase/supplement aging awareness. KLRI sponsors local monthly seminars and a national symposium featuring world-renowned gerontologists, which provide continuing education for medical and science professionals in the field of aging. Continuing Medical Education credits are available for all these seminars. Additional information can be found on our website (www.kronosinstitute.org) or by calling (602) 778-7499.

Public Education

KLRI faculty speak at numerous events and are willing to speak to you. Topics focus on strategies for living longer, healthier lives. Examples include:

- Aging and the onset of chronic disease (heart disease, diabetes, etc.)
- How exercise can impact your life
- The importance of mental exercise and activities, ways to stay sharp
- Nutrition



Join Us

for the
Kronos Longevity Research Institute's

**"Thanks for Bringing
Love Around Again"**

Featuring Ray Charles

Celebrity Theatre

5:30 p.m.

November 10, 2002

**For more information call
602.778.7499**

BIOMEDICAL GERONTOLOGY SYMPOSIUM TO BE HELD FEBRUARY 5 - 7, 2003

Topic: Diet, Health, Aging and Longevity: Good Fat, Bad Fat

Over ten internationally renowned speakers at

The Wyndham Buttes Resort, Phoenix Metropolitan Area

The symposium will assemble a panel of experts to address dietary fats in aging and age-related diseases. The potentially beneficial effects of omega-3 polyunsaturated fatty acids (PUFAs) and monounsaturated fatty acids (MUFAs) on health and disease will be examined, as well as the evidence for adverse effects of saturated fats, trans-fatty acids and omega-6 PUFAs. The speakers will review basic research addressing modulation of cellular function by dietary fatty acid content, define the current state of knowledge and project future research needed to arrive at realistic dietary recommendations.



Topic Preview

- ◀ Fatty acids and cholesterol: effects on membrane fluidity and signal transduction
- ◀ Peroxisome proliferator-activated receptors: a link among fatty acids, genes and cancer
- ◀ Safety considerations of PUFAs: enhanced in vivo lipid peroxidation
- ◀ Serum lipids and mean life span modulation by dietary PUFA in the mouse
- ◀ Fats and fatty acids: role in atherosclerosis and diabetes
- ◀ Omega-3 and omega-6 polyunsaturated fatty acids and mental health

Don't miss it!

KLRI Staff

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