SCIENCE NEWS DIGEST

Up-to-the-Minute Research and Education for Health Care Professionals

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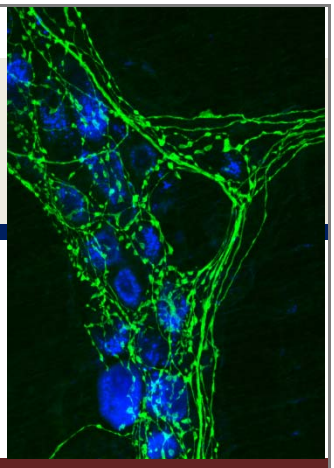

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Fight to Stay Young

Focus on Good Nutrition and Physical Activity

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Although aging is a natural process all bodies experience, the organs in your body will typically begin to progressively deteriorate in the third and fourth decades of your life. The rate and severity at which this occurs will be determined by your biological age.

Not to be confused with chronological age, which is just a measure of the amount of time you've lived, your biological age is the accumulation of the behavioral, environmental, and genetic factors that influence the physiological health of your body. For some people who have led a healthy and active lifestyle, their biological age may be much younger than their chronological age. For most people, unfortunately, their biological age is likely much older.

What we know is that the only factors you can realistically control are your behavioral and lifestyle choices, which include but are not limited to a balanced diet, exercise, and quitting smoking. Monitoring this and establishing such healthy habits while you are young will set you on the right path toward healthy biological aging. But whether you are young, middle-aged or older, science tells us it's never too late to jump into the game.

SOME HEALTHY AGING TIPS FOR MATURE ADULTS

Both good nutrition and physical activity enhance health and enjoyment of life among people of all ages. This is especially true among people age 60 and older. Improving both the quality and the quantity of healthy life among older adults is a critical public health goal. There is a marked increase in nutrient inadequacies in elderly for many reasons, including a lack of attention to nutrient density, no use or misuse of supplements, and drug-induced nutrient deficiencies.

Healthy Aging Tips for Mature Adults

Some of the other physiologic differences that occur during aging that influence requirements for nutrients are:

- Changes in body composition that may result in changes in requirements for calories and nutrients
- Changes in the skin that may influence requirements for vitamin D
- Changes in the intestinal tract that may influence requirements for some vitamin supplements.

Older adults should follow the traditional recommendations with certain changes for special nutritional needs that include higher daily intake of calcium (1200-1500 mg) and vitamin D (800 IU) to prevent osteoporosis. A number of researches suggest that folic acid, B6 and B12 may be helpful in reducing risk of coronary artery disease and preventing loss of cognitive function. Other studies suggest that immune function may be improved by supplementation with protein, vitamin E, zinc and other micronutrients. Still others recommend that antioxidant vitamins and phytonutrients may prevent age-related cataracts, macular degeneration, death from heart disease and the progression of Alzheimer's disease. In addition older adults have lower caloric needs (1,600 calories or less a day) than younger individuals. Also, consuming adequate amount of fiber and probiotics becomes essential for the elderly.

In brief, as people age, some vitamins and minerals become more important. Thus, increased requirement for many nutrients with age often requires rational intake of dietary supplements. But we can slow these and many other aspects of the aging processes through early nutrition intervention, and a healthy, active lifestyle.

Research Updates

Press Release: the Nobel Prize in Physiology or Medicine 2009

(For full details, please visit the following link http://nobelprize.org/nobel_prizes/medicine/laureates/2009/press.html)

Awarded Jointly to Elizabeth H. Blackburn, Carol W. Greider and Jack W. Szostak for the discovery of "how chromosomes are protected by telomeres and the enzyme telomerase"

SUMMARY

This year's Nobel Prize in Physiology or Medicine is awarded to three scientists who have solved a major problem in biology: how the chromosomes can be copied in a complete way during cell divisions and how they are protected against degradation. The Nobel Laureates have shown that the solution is to be found in the ends of the chromosomes – the telomeres – and in an enzyme that forms them – telomerase.

The long, thread-like DNA molecules that carry our genes are packed into chromosomes, the telomeres being the caps on their ends. Elizabeth Blackburn and Jack Szostak discovered that a unique DNA sequence in the telomeres protects the chromosomes from degradation. Carol Greider and Elizabeth Blackburn identified telomerase, the enzyme that makes telomere DNA. These discoveries explained how the ends of the chromosomes are protected by the telomeres and that they are built by telomerase.

If the telomeres are shortened, cells age. Conversely, if telomerase activity is high, telomere length is maintained, and cellular senescence is delayed. This is the case in cancer cells, which can be considered to have eternal life. Certain inherited diseases, in contrast, are characterized by a defective telomerase, resulting in damaged cells. The award of the Nobel Prize recognizes the discovery of a fundamental mechanism in the cell, a discovery that has stimulated the development of new therapeutic strategies.

Research Updates

Fruit & vegetable antioxidants

To Slow Brain Aging?

According to a research team from Germany, Temple University in the USA and University of Perugia in Italy, the more antioxidant-rich fruits and vegetables in your diet, the greater your chances of keeping a clear, sharp mind in old age.

Their study traced the relationship between fruit and vegetable intake, antioxidant status and cognitive performance in 193 healthy men and women aged 45 to 102. Their conclusion; those who had the highest intake of fruits and vegetables (400 grams or about 14 ounces per day), also had the highest plasma antioxidant levels, the lowest level of free-radical damage and the best cognitive performance than those who consumed the least (less than 100 grams or 3.5 ounces) of fruits and vegetables daily. And this effect was regardless of age, gender, body mass index or education level. The primary health protecting antioxidants science associates with fruit and vegetable intake include carotenoids, polyphenols (flavonoids), vitamins C & E.

Polidori MC, et al. High Fruit and Vegetable Intake is Positively Correlated with Antioxidant Status and Cognitive Performance in Healthy Subjects. J Alzheimers Dis. 2009 Aug. 17(4): 921-927

Omega-3's

Protecting eyesight into old age

In a recent study from the US National Eye Institute researchers pointed out that increasing omega-3 fatty acid intakes reduced the probability of developing blindness associated with aging by more than 30%. The study, published in the American Journal of Clinical Nutrition* looked at omega-3 fatty acid intake of 1,837 participants over a period of 12 years related to both "wet" and "dry" age-related macular degeneration (AMD), the leading cause of blindness in people over 50. It showed that increased intakes of omega-3 fatty acids equated to 35% & 32% risk reduction of wet and dry AMD respectively. This work further substantiated the meta-analysis published in the Archives of Ophthalmology (June 2008) that showed a 38% reduction.

Tuo J, et al. A high omega-3 fatty acid diet reduces retinal lesions in a murine model of macular degeneration. Am J Pathol. 2009 Aug;175(2):799-807.

Vitamin D

To Support Cancer Health

In Europe, there are 363,000 new cases of colorectal cancer every year in Europe, and around 945,000 cases globally, with 493,00 deaths each year. A recent study from Harvard researchers found that a higher blood level of vitamin D is associated with doubling the survival rate of patients with colorectal cancer. There was an overall lower rate of mortality by 40% in people with the highest levels of the vitamin.

This meta-analysis looked at data from 1,017 previously diagnosed participants in the Nurses' Health Study and Health Professionals Follow-Up Study, and adds to the body of research suggesting the potential benefits for vitamin D for colorectal health.

Ng K, et al. Prospective study of predictors of vitamin D status and survival in patients with colorectal cancer. Brit J of Cancer.2009 Sep. 101:916-923.

Not Enough D for Mothers-to-be

A new study from Northern Ireland suggest that many mothers are not getting enough vitamin D, suggesting that current recommendations may be insufficient. The researchers recruited 99 pregnant women at 12, 20 and 35 weeks of gestation, and 38 non-pregnant controls living at a latitude of 54 to 55 °N. S, and found that 96, 96 and 75 per cent respectively were vitamin D insufficient, and 35, 44, and 16 per cent wre vitamin D deficient. Children born to vitamin D- deficient mothers are at an increased risk of rickets, while mothers may experience a detrimental effect on bone build-up, increased risk of type-1 diabetes and asthma. Researchers concluded that "Given the potential consequences of hypovitaminosis D on health outcomes, vitamin D supplementation, perhaps at higher doses than currently available, is needed to improve maternal vitamin D nutriture."

This data supports the on-going debate regarding increasing the recommended amounts of vitamin D intake.

Holmes VA, et al. Vitamin D deficiency and insufficiency in pregnant women: a longitudinal study. Br J Nutr. 2009 Sep;102(6):876-81.

Research Updates

Heart Benefits of Green Tea

The results of a new study from Japan suggests that the long term consumption of seven cups of green tea a day may reduce the risk of death from colorectal cancer and heart disease by 75%! Researchers recruited 14,001 elderly residents in Japan, of which 12,251 individuals were evaluated for the various associations between green tea consumption and all-cause mortality, cancer and CVD, and on average, followed-up after 5.2 years.

Compared to people who drank less than one cup per day, drinking seven or more cups of green tea a day was associated with a 55 and 75 percent lower risk of all-cause and CVD mortality, respectively, said the researchers. Furthermore, "green tea consumption was associated with lower risk of colorectal cancer mortality", they said. This data coincides with the recent results of a study from the Chinese University of Hong Kong, which measured the length of telomeres and reported that the cells of tea drinkers may have a younger biological age that the cells of non-drinkers.

Suzuki E, et al. Green tea consumption and mortality among Japanese elderly people: the prospective Shizuoka elderly cohort. Ann Epidemiol. 2009 Oct;19(10):732-9.

Zinc and DNA Protection

Published in the August 2009 American Journal of Clinical Nutrition is the first human study to directly examine the correlation between zinc intake and DNA damage in healthy adult males. This study was conducted on 9 healthy men with reported zinc intakes of 11mg/day. Over the course of 83 days, the participants underwent periods of zinc depletion (0.6 mg zinc/day for 1 week, then 4 mg zinc/day for 5 weeks) and zinc repletion (11 mg zinc/day for 4 weeks with 20 mg supplemental zinc for the first 7 days) to examine the effects of varying levels of zinc intake. Blood samples were analyzed for DNA damage in peripheral blood cells, plasma oxidative stress, and antioxidant defense biomarkers.

Researchers confirmed that dietary zinc depletion was significantly associated with increased DNA brekage and the repletion of zinc reversed the observed DNA weakness. This data reaffirms the importance of dietary zinc intake for healthy DNA function.

Song Y, et al. Dietary zinc restriction and repletion affects DNA integrity in healthy men. Am J Clin Nutr. 2009 Aug;90(2):321-8.

Cardiovascular Benefits of Cruciferous Veggies

Atherosclerosis, is a key risk factor for cardiovascular disease, the cause of over 50 per cent of deaths in Europe and the US. A new study for the UK examines the compound sulforaphane, most commonly found in broccoli, which may protect from vascular disease by promoting a natural defense mechanism in the body. Specifically, the compound may be associated with activation of the protective protein Nrf2 in arteries, which have been found to be inactive in areas of arteries that are susceptible to disease and more prone to inflammation.

"[Exposure to] the natural compound sulforaphane reduced inflammation at the high-risk areas by 'switching on' Nrf2," researchers concluded. "These fascinating findings provide a possible mechanism by which eating vegetables protects against heart disease." This research could lead to more targeted approaches to prevent or protect against heart attacks and strokes.

Other benefits of broccoli and cruciferous vegetables, based upon preliminary animal and epidemiological studies, include fewer instances of lung, colon, breast, ovarian and bladder cancer.

Zakkar M. Activation of Nrf2 in endothelial cells protects arteries from exhibiting a proinflammatory state. Arterioscler Thromb Vasc Biol. 2009 Nov;29(11):1851-7. Epub 2009 Sep 3.

Supplements and Cancer Protection?

Researchers from Norway conducted a study on lung cancer patients and found that those who were regular dietary supplement users prior to diagnosis may have a better survival rate than non-users.

Researchers reported that consumption of cod liver oil daily for a year prior to diagnosis was associated with a 23 per cent reduction in the risk of death in patients with solid tumours, and a reduction of 44 per cent in lung cancer patients. Additionally, daily and occasional use of other dietary supplements was associated with 30 and 45 per cent reduction, respectively, in the risk of death among lung cancer patients.

Skeie G, et al. Cod liver oil, other dietary supplements and survival among cancer patients with solid tumours. Int J Cancer. 2009 Sep 1;125(5):1155-60