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## In The NEWS

### Curry Spice Supports Cognition in Older Adults



Elderly adults who regularly consume curry spice demonstrate better cognitive performance than those who rarely or never eat curry, report scientists in Singapore.<sup>1</sup> Curcumin, the natural pigment that gives the curry spice turmeric its yellow color, is known for its potent antioxidant and anti-inflammatory properties.

A total of 1,010 dementia-free Asian men and women aged 60-93 were divided into three groups based on their curry consumption: once a month to daily (43%), once every six months (41%), or rarely or never (16%). After accounting for sociodemographic, health, and behavioral factors, those who consumed curry once a month or daily, or once every six months, scored higher on a questionnaire that assesses cognition and screens for dementia than those who

“rarely or never” ate curry.

Since even modest consumption is associated with improved cognitive function, curry and its constituents (such as curcumin) show promise in preventing dementia and Alzheimer’s disease.

—Robert Gaston

### Testosterone-Deficient Men More Prone to Falling

Older men with lower testosterone levels tend to fall more frequently than those with higher levels of the hormone, according to a recent study.<sup>2</sup> Declining testosterone levels commonly accompany aging in men, and may impair physical performance, vision, coordination, and thinking processes.

Scientists studied 2,578 men, aged 65-99, between 2000 and 2005. All subjects had their testosterone levels periodically assessed, along with measures of strength and balance. During four years of follow-up, the men were asked every four months whether they had fallen.

Fifty-six percent of the men suffered at least one fall, and many fell frequently. Lower testosterone was linked to an increased risk of falling generally, and men with the lowest testosterone had a 40% greater probability of falling than those with the highest levels. The effect of low testosterone was most apparent in men aged 65-69.

—Robert Gaston

### Recurrent Viral Infections May Cause Memory Loss



Acute viral infections such as the common cold may lead to cumulative brain damage and memory loss, according to scientists at the Mayo Clinic.<sup>3</sup>

The researchers infected mice with encephalomyelitis virus, a member of a family of aggressive viruses that include those responsible for the common cold, polio, and hepatitis A. After recuperating from infection, the mice had greater difficulty navigating a maze they had learned earlier (compared to an uninfected group). Brains of the infected mice showed severe damage to the hippocampal region, which is responsible for memory processing. The degree of memory impairment correlated with the amount of damage to the hippocampus.

The researchers hypothesize that infection with certain viruses—such as rhinoviruses, which cause the common cold—may damage the hippocampus of the human brain, and that recurrent colds could inflict cumulative damage eventually contributing to memory loss.

—Robert Gaston

## Olive Extract Kills Colon Cancer Cells



Olive fruit extract demonstrates anti-cancer effects in human colon cancer cells, report scientists in Spain.<sup>4</sup>

The researchers applied an extract of olive fruit to human colon cancer cells in the laboratory. The extract prevented the cancer cells from proliferating, but had no adverse effects on healthy cells. Furthermore, the olive extract induced the cancer cells to undergo programmed cell death (apoptosis). After incubating cancer cells with olive extract for 24 hours, the researchers noted a six-fold increase in their production of caspase-3, a protein involved in the orderly destruction of unhealthy cells.<sup>5</sup>

Olives are an important component of the Mediterranean diet, which is associated with cancer protection, cardiovascular health, and an extended life span.<sup>5-6</sup>

—Dale Kiefer

## Nutrient Combo Boosts Mitochondrial Energy



Canadian researchers report that a nutrient combination including creatine monohydrate, coenzyme Q10, and lipoic acid improves mitochondrial energy production, even in patients with diagnosed disorders of mitochondrial metabolism.<sup>7</sup>

This randomized, double-blind, placebo-controlled study assessed the supplement combination versus inactive placebo on measures of mitochondrial energy production efficiency. Impaired mitochondrial function generates excessive free radicals, which in turn contribute to disease processes and tissue damage.

Patients receiving the nutritional regimen experienced significantly less free-radical production and more efficient energy production.

—Dale Kiefer

## Alpha-Lipoic Acid Improves Diabetic Neuropathy



Researchers report that alpha-lipoic acid improves symptomatic diabetic polyneuropathy, a painful condition of the nerves that afflicts many diabetics.<sup>8</sup>

In a multicenter, randomized, double-blind trial, 181 diabetics with symptoms of distal symmetric polyneuropathy received a placebo for one week followed by a daily oral supplement of 600, 1200, or 1800 mg of alpha-lipoic acid, or a placebo, for five weeks. The 166 subjects who completed the trial reported a significant reduction in stabbing pain and burning pain compared to the placebo group.

Alpha-lipoic acid's ability to improve neuropathy symptoms may reflect improved blood flow caused by alpha-lipoic acid's antioxidant action. According to the authors, significant improvement in symptoms was demonstrable within one to two weeks of treatment.

—Dayna Dye

## DHA Suppresses Production of Fat Cells



New research shows that docosahexaenoic acid (DHA), an omega-3 fatty acid in fish oil, may fight excess body weight by thwarting the development of fat cells.<sup>9</sup>

Working with cultured pre-adipocytes (immature fat cells), scientists showed that levels of DHA obtainable through the diet may help avert obesity by preventing new fat cells from forming and encouraging existing fat cells to undergo programmed cell death (apoptosis). DHA also encouraged adipose cells to release their stores of fatty acids, a process popularly referred to as “burning fat.”

Previous research has shown that dietary omega-3 fatty acids decrease body fat and fat accumulation in rodents,<sup>10,11</sup> but the present study helps explain precisely how DHA may work to reduce obesity.

—Dale Kiefer

## Folate-Deficient Diet May Raise Colon Cancer Risk



Diets that fail to provide enough folate increase the risk of colorectal cancer in a laboratory model of the disease, report Canadian researchers.<sup>12</sup> Folate, a B vitamin that is abundant in leafy green vegetables, has been shown to have a protective benefit against a number of diseases.

The researchers created a model in which mice develop intestinal masses when consuming reduced-folate diets. While animals on a control diet remained free of tumors, folate deficiency increased DNA damage and decreased the expression of two genes involved in DNA damage response.

“This research, which is consistent with previous epidemiological studies in humans, demonstrates a clear link between low dietary folate and the initiation of colorectal cancer in animal models,” the researchers concluded. “This study highlights how simply adding a supplement to your daily diet could have tremendous long-term benefits.”

—Dayna Dye

## High Vegetable Consumption Slows Cognitive Decline



Eating vegetables may help slow age-related decline in cognitive function, according to a recent study funded by the National Institute on Aging.<sup>13</sup>

Researchers evaluated food-frequency questionnaires completed by 3,718 Chicago residents aged 65 and older. Participants completed at least two of three cognitive function tests conducted at the study's onset and at three and six years. Vegetable consumption was associated with a reduced rate of cognitive decline. Green leafy vegetables were found to have the strongest association, and older people appeared to benefit the most.

"Compared to people who consumed less than one serving of vegetables a day, people who ate at least 2.8 servings of vegetables a day saw their rate of cognitive change slow by roughly 40%," the researchers concluded. "This decrease is equivalent to about five years of younger age."

—Dayna Dye

## Aspirin Combats Cancer by Inhibiting Angiogenesis



Aspirin, which is already recognized as being protective against some cancers due to its ability to inhibit the cyclooxygenase (COX) enzyme, may also fight tumors by directly reducing angiogenesis, or new blood vessel growth.<sup>14</sup>

Researchers in England compared the effects of varying concentrations of aspirin, salicylate (the natural form of aspirin), and the selective COX inhibitors SC560 and celecoxib (Celebrex®) on the proliferation, viability, and angiogenesis of cultured endothelial cells. While therapeutic concentrations of aspirin and salicylate had no effect on cell viability or proliferation, angiogenesis was significantly reduced. This effect was seen even at the lowest concentrations of aspirin and salicylate used, but was not observed with the COX inhibitor drugs.

—Dayna Dye

## Green Tea Flavonal May Improve Glucose Control



Swiss researchers report that epigallocatechin gallate (EGCG), a flavonal in green tea, alleviates diabetes in mice and rats.<sup>15</sup>

Type II diabetic mice were given diets containing 2.5, 5, or 10 grams per kilogram of a green tea extract providing over 94% EGCG. A control group of diabetic mice received no EGCG, and another group was treated with an anti-diabetic drug.

EGCG dose-dependently improved glucose levels and tolerance in diabetic mice after five weeks. Mice that received the highest dose experienced a 37% average reduction in glucose levels compared to animals that did not receive the compound. Triglyceride levels were also dose-dependently reduced and insulin secretion was increased.

"Dietary supplementation with EGCG could potentially contribute to nutritional strategies for the prevention and treatment of type II diabetes mellitus," the authors concluded.

—Dayna Dye

## Compound in Sesame Lignans Enhances Endothelial Function



Sesamol, an antioxidant compound derived from sesame seed lignans, may promote cardiovascular health by influencing the production of nitric oxide, Taiwanese scientists recently reported.<sup>16</sup>

By relaxing blood vessel walls and promoting blood flow, nitric oxide fights the development of atherosclerosis, which is characterized by a thickening and loss of elasticity in the arteries, followed by the development of blood-flow-reducing arterial plaques. Nitric oxide also inhibits platelet aggregation, further reducing the likelihood of plaque formation and the incidence of dangerous blood-borne clots implicated in stroke.

Using endothelial cells from umbilical cord veins, the Taiwanese scientists showed that sesamol “switches on” genes that direct the production of nitric oxide synthase, an enzyme that in turn orchestrates the production of nitric oxide.

—Dale Kiefer

## Study Advises Prostate Screening Starting at Age 40



Johns Hopkins researchers recently recommended screening for prostate cancer in men beginning at age 40. In addition, say the scientists, prostate cancer diagnosis should be based on multiple readings over time that would show how a man’s prostate-specific antigen (PSA) level changes, not on a single reading.<sup>17</sup> These changes would reduce the number of men treated unnecessarily and would better identify potentially deadly tumors that require aggressive treatment, according to the researchers.

The team tracked nearly 1,000 men in the Baltimore area who volunteered for a long-term study of aging that began in 1958. Using frozen blood samples, the researchers explored whether the speed at which a man’s PSA levels changed was a good predictor of his chances of dying of prostate cancer. They found that the faster a man’s PSA level increased, the more likely he was to die of prostate cancer.

Dr. H. Ballentine Carter, professor of urology and oncology at the Johns Hopkins University School of Medicine and the study’s lead author, said, “We don’t need to diagnose more prostate cancer. We need to find the prostate cancers that are fatal.”

—Matt Sizing

## Ginger Holds Promise for Diabetes Treatment

Ginger helped to improve several manifestations of diabetes in animals with experimentally induced diabetes, according to a recent publication.<sup>18</sup>

In the laboratory, scientists treated rats with a chemical in order to induce diabetes. Accordingly, the rats displayed typical manifestations of diabetes, including high blood sugar and weight loss. Next, the scientists administered raw ginger (500 mg per kilogram of body weight per day) to the subjects for seven weeks.

Diabetic rats that received ginger had markedly lower levels of blood sugar, cholesterol, and triglycerides than rats not treated with ginger. Ginger apparently improved other complications of diabetes as well, by reducing loss of protein in the urine, excess water intake, excess urine output, and weight loss.

The research team concluded that raw ginger helps decrease blood sugar, cholesterol, and lipid levels in experimental test subjects. Further study is indicated to learn if ginger produces the same effects in humans with diabetes.

—Laura J. Ninger, ELS

## Scientists Grow “Mini Liver” from Stem Cells



British scientists have grown a coin-sized “mini liver” from stem cells, a breakthrough that could lead to the production of transplantable organs.<sup>19</sup> They employed readily available human umbilical cord blood to produce “cord-blood-derived embryonic-like stem cells,” avoiding the highly controversial use of embryonic stem cells.

The scientists coaxed the cells to differentiate into complex liver tissues by incubating them with a special mixture of enzymes and nutrients in a NASA-designed “bioreactor.” This device allows cells to grow more rapidly and facilitates growth in three dimensions, a stumbling block that has previously hindered development of complex tissues from stem cells.

Although scientists have previously developed simple tissues using somewhat similar techniques, this marks the first time a complex organ has been synthesized using non-embryonic stem cells.

The researchers anticipate that mini-organs will be available for transplantation within two years.

—Dale Kiefer

## European Doctors Advise Fish Oil After Heart Attacks

Although heart-attack survivors in Europe are routinely prescribed fish oil, this practice is rarely followed in the United States, according to a recent report in the *New York Times*.<sup>20</sup>

In numerous studies, fish oil rich in omega-3 fatty acids has been shown to improve survival after heart attacks and to reduce fatal heart rhythms. In the US, however, heart attack victims are rarely given omega-3 fatty acids, though they are routinely prescribed more expensive and invasive treatments, such as cholesterol-lowering drugs and implantable defibrillators.

Dr. Terry Jacobson, a preventive cardiologist at Emory University in Atlanta, told the *Times*, “Most cardiologists here are not giving omega-3s, even though the data support it—there’s a real disconnect. They have been very slow to incorporate the therapy.”

Wide variations in cardiac care around the world underscore the decisive role that drug companies play in disseminating medical information, according to the *Times* report. Because prescription fish oil is not licensed to prevent heart disease in the US, drug companies may not legally promote it for that purpose, and doctors routinely fail to recommend it to their patients.

According to a recent study published in the *Journal of the American Board of Family Medicine*, only 17% of family doctors were likely to prescribe fish oil to their patients, including those who had suffered a heart attack. The authors concluded that there was a great need to “improve awareness of this important advice.”

In a landmark study of fish oil conducted more than a decade ago, Italian researchers from the GISSI Group gave 11,000 patients 1 gram of prescription fish oil a day after they had suffered a heart attack. After three years, the number of deaths was reduced by 20% and the number of sudden deaths by 40% compared to a control group. By 2004, medical regulatory authorities in almost all European countries, including Spain, France and Britain, had approved prescription fish oil for use in heart attack patients. The American College of Cardiology now advises patients with coronary artery disease to increase their consumption of omega-3 acids to 1 gram a day.

Dr. Maria Franzosi, a researcher at the Mario Negri Institute in Milan, told the *Times* that the use of fish oil “is very popular here in Italy, I think partly because so many cardiologists in this country participated in the studies and were aware of the results. In other countries, uptake may be harder because doctors think of it as just a dietary intervention.”

Research on fish oil continues to gain momentum in Europe. Researchers from the GISSI Group are now conducting two major trials to examine fish oil’s effects in patients with abnormal heart rhythms and in patients with heart failure.

—Matt Sizing

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