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EDITOR'S NOTES:

Should You Toss the Supplements?

If a study came out finding that people who drank water had no lower risk for dementia, would you stop drinking water? If another study came out finding that people who meet their recommendation for protein were at no lower risk for heart disease than people who ate too little protein, would you eliminate protein from your diet? Probably not. Both water and protein are essential nutrients. There is no controversy over their importance for human nutrition.

Three studies published in the December 16th issue of the *Annals of Internal Medicine* conclude that taking supplements had little or no effect on lowering the risk for cardiovascular disease and cancer (Fortmann, et al), cognition decline in men (Grodstein, et al), or death and cardiovascular events in people who had already suffered a heart attack (Lamas, et al). Is this cause to toss the supplements, as one editorial in the same journal concludes? I think not.

As with water and protein, vitamins and minerals are essential nutrients. Every human body needs them from conception to the end of life, but can synthesize only one of them, vitamin D. They must come from the diet on a regular basis and in amounts known to ensure life, as well as health. There is no controversy there. Our bodies don't make the 13 essential vitamins and the 20 or more minerals known to be essential for life. A lack of even one vitamin or mineral over time can have devastating consequences, in many cases even death.

The implied message in these three studies is that people must be meeting their requirements for these essential nutrients from their diets, hence adding more through supplements has little or no effect on long-term health. Yet, numerous national nutrition surveys spanning decades of research have repeatedly and consistently found that many Americans do not meet the basic needs for certain vitamins and/or minerals. One study from the National Cancer Institute found that 99 out of every 100 Americans don't meet even the minimum standards of a balanced diet (*American Journal of Clinical Nutrition* 1997;66:S1264-S1268). The USDA's Healthy Eating Index, a tool to assess Americans' eating habits, rating them on a scale of 0 to 100, consistently finds that most Americans score below or in the 60s, equivalent to an "F" or a "D" ranking on nutrition (*Journal of the Academy of Nutrition and Dietetics* 2012;November 15th). Why not fill in the gaps with a moderate-dose, well-balanced multi supplement on the days when people don't eat perfectly? As these three studies found, there is no harm in taking a multi. In fact, it is one of the lowest cost preventive measures we can adopt. I can find no reason not to.

On one level, I agree with the findings of these research studies. There is not enough evidence to determine whether the risk of cardiovascular disease or cancer can be reduced solely by taking a supplement. That's why they are called supplements, not substitutes for an excellent diet. Even the Grodstein study concludes that the subjects "...may have been too well-nourished to observe benefits from supplementation." Even the most staunch supporters of supplements agree that no pill can replace a healthy diet and lifestyle. It is one factor in a pattern of living that is known and supported by thousands of well-designed studies to lower disease risk, obesity risk, premature aging, and premature death, while improving the quality of life and lowering the need to take medications. I will continue taking my supplements. Elizabeth Somer, M.A.,R.D.



Elizabeth Somer

Hear, Hear for Magnesium and Antioxidants

A study from the University of Michigan and the Seoul National University College of Medicine in Korea set out to identify if the intake of certain nutrients might affect a person's risk for hearing loss. Data was gathered from the National Health and Nutrition Examination Survey (NHANES), 2001-2004 that included 2,592 people between the ages of 20- and 69-years-old. Results showed that high intakes of magnesium and the antioxidants, beta carotene and vitamin C, were associated with improved hearing at both high and low frequencies. The researchers conclude that, "Dietary intakes of antioxidants and magnesium are associated with lower risk for hearing loss."

Choi Y, Miller J, Tucker K, et al: Antioxidant vitamins and magnesium and the risk of hearing loss in the US general population. American Journal of Clinical Nutrition 2014;99:148-155.

HOTTOPIC: Dietary fats associated with heart disease also might contribute to muscle loss as women age, state researchers at University of East Anglia, UK. *Journal of Nutrition* 2014;January 8th.

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Minerals for Metabolic Syndrome

Low mineral intakes might be a contributing factor in metabolic syndrome, according to a study from Kongju National University in South Korea. Dietary intakes of magnesium, manganese, and copper were gathered on 5,136 adults (2,084 men and 3,052 women) from the 2007-2008 Korea National Health and Nutrition Examination Survey (KNHANES). The intakes of people with metabolic syndrome were compared to intakes of healthy adults. Among study participants, 25.9% (540 subjects) of the men and 24.5% (748 subjects) of the women met diagnostic criteria for metabolic syndrome. Results showed

that men with metabolic syndrome had significantly lower levels of magnesium and copper compared to controls.

In women, dietary intakes of magnesium, manganese, and copper were lower in the metabolic syndrome group. The women with high blood pressure showed significantly lower intakes of all three minerals compared to control subjects. In addition, in women, the highest quartile of magnesium and copper intakes was inversely associated with metabolic syndrome. The researchers conclude that, "...[since metabolic syndrome] incidence increases and dietary intake and nutrient

density decrease with increasing age, and mineral intake is reduced accordingly, these results suggest that meal management with adequate mineral intake is advisable to control [this disease]."

Choi M, Bae Y. Relationship between dietary magnesium, manganese, and copper and metabolic syndrome risk in Korean adults. Biological Trace Element Research 2013;November 12th.

Phytonutrients Score Big in Diabetes Prevention

Compounds in blueberries, red wine, and tea, called flavones and anthocyanins, reduce the risk for diabetes, according to a study from the University of East Anglia in the UK. The researchers compared the intake of flavonoids with both insulin resistance and related inflammatory biomarkers in 1,997 women between the ages of 18- and 76-years-old. Results showed that consuming high levels of foods rich in flavones and anthocyanins significantly lowered the risk for insulin resistance, improved blood sugar regulation, and lowered inflammatory processes. The researchers conclude that more research is needed to identify optimal intakes of these phytonutrients.

A study from the University of Eastern Finland found that diets rich in colorful fruits and vegetables, especially berries, lowered risk of developing Type 2 diabetes.

IN PERSPECTIVE: *The best dietary sources of these compounds include berries, herbs, parsley, cocoa powder, thyme, celery, berries, red grapes, red wine, and other red- or blue-colored fruits and vegetables.*

Jennings A, Welch A, Spector T, et al. Intakes of anthocyanins and flavones are associated with biomarkers of insulin resistance and inflammation in women. Journal of Nutrition 2014;144:202-208.

Mursu J, Virtanen J, Tuomainen T, et al. Intake of fruit, berries, and vegetables and risk of type 2 diabetes in Finnish men. American Journal of Clinical Nutrition 2014;99:328-333.

Obesity Myth Busted

There is no such thing as "healthy obesity," warn researchers at the University of Toronto. The notion that some people can be overweight or even obese and still remain healthy is a myth. This meta-analysis of studies included 61,386 people total and compared BMI categories with risk of all-cause mortality and/or cardiovascular events. Results showed that even metabolically "healthy" obese individuals had increased risk for events compared with metabolically healthy normal-weight people. All metabolically unhealthy groups had a similar disease risk, whether they were normal weight, overweight, or obese. In short, even without high blood pressure, diabetes, or other metabolic issues, people who are overweight are at risk for higher death rates, heart attack, and diabetes.

Kramer C, Zinman B, Retnakaran R. Are metabolically healthy overweight and obesity benign conditions? Annals of Internal Medicine 2013;159:758-769.

B Smart About Stroke

People who supplement with B vitamins that lower homocysteine levels lower their risk for stroke, according to a meta-analysis from Zhengzhou University in China. Researchers analyzed the findings from 14 clinical trials that included a total of almost 55,000 people, comparing B vitamin supplements with placebos. Results showed that B vitamin supplementation was associated with reduced homocysteine levels that lowered the risk of stroke by 7%.

Yan J, Song T, Yuming X, et al. Vitamin B supplementation, homocysteine levels, and the risk of cerebrovascular disease. Neurology 2013;81:1298-1307.

ARE YOU INSULIN RESISTANT?

If you have any three of the following five risk factors, you are likely to be insulin resistant. To lower risk, cut back on junk food, calories, saturated and trans fats. Also, limit refined grains and added sugars. And, get physically active every day!

- | | | |
|------------------------|------------|---------------------------|
| 1. Waist | Women: | More than a 35-inch waist |
| | Men: | More than a 40-inch waist |
| 2. HDL-cholesterol | Women: | Under 50 |
| | Men: | Under 40 |
| 3. Blood pressure | Systolic: | 130 or higher or |
| | Diastolic: | 85 or higher |
| 4. Triglycerides | | 150 or higher |
| 5. Fasting blood sugar | | 110 or higher |

Source: The National Heart, Lung, and Blood Institute



IN THE NEWS

- Energy drinks containing caffeine and taurine can provide too much of a boost in heart rate, increasing heart contraction rates to potentially dangerous levels, according to a study reported at the annual meeting of the Radiological Society of North America in Chicago.
- Americans are living longer than ever, with average life expectancy having increased to 78.8 years, up from 78.5 years in 2008, says the Centers for Disease Control and Prevention. However, increases in life expectancy are not matched by increases in “health span,” which means people will live longer, but with more years of illness and disability. The primary reason is self-induced weight gain and lack of fitness due to diet choices and inactivity.
- Americans are eating healthier diets, making better use of nutrition information on food labels, consuming more fiber and less cholesterol, and getting fewer calories from total fat and saturated fat, according to a report from the US Department of Agriculture.
- A Consumer Reports study found varying levels of 4-methylimidazole, a potentially carcinogenic chemical found in some caramel coloring, in 12 brands of soda from five manufacturers. The Food and Drug Administration will be investigating.
- Vitamin D supplements might help reduce pain from fibromyalgia, according to a study from Austria.

HOT TOPICS: Researchers at the University of Sherbrooke, Quebec report that the omega-3 fats protect against stress-induced damage to brain centers, such as the hippocampus that regulates memory. *Nutrition Reviews* 2014;January 13th.

Quinoa is gluten-free and a healthy inclusion in the diet for people with celiac disease or gluten intolerance, state

Muscles Need E

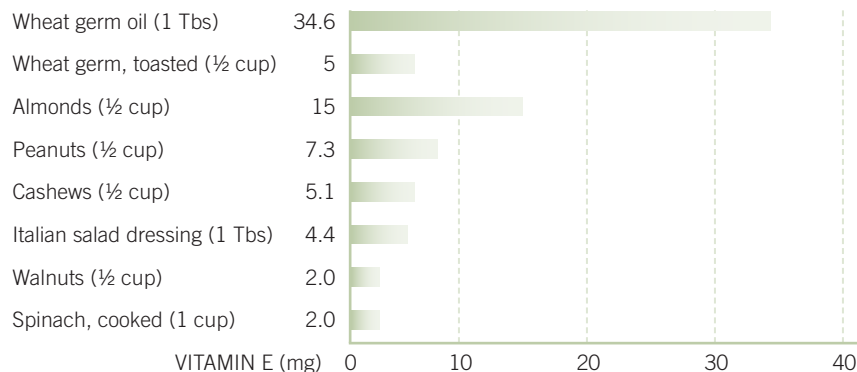
Low vitamin E status might contribute to bone loss and muscle wasting, according to a study from Uppsala University in Sweden. During a 19-year follow-up of 14,738 men and women, the researchers found a higher incidence of fracture rate in women and men with low initial vitamin E status. In contrast, vitamin E supplementation was associated with a lower risk of fracture. Previous studies show that low vitamin E status is linked to reduced physical performance in people who are 65-years-old and older. This relationship was observed also in participants in this

study who had blood vitamin E levels averaging 30.0umol/L or less.

IN PERSPECTIVE: *One in every two young adults in the US have blood vitamin E levels less than 25.9umol/L. Since this level is well below the level associated with muscle wasting in this study, it is clear that a large section of the population may be experiencing harmful effects from inadequate vitamin E status.*

Michaelsson K, Wolk A, Byberg L, et al: Intake and serum concentrations of a-tocopherol in relation to fracture in elderly women and men: 2 cohort studies. American Journal of Clinical Nutrition 2013; doi:10.3945/ajcn.113.064691

JUST HOW MUCH VITAMIN E IS IN THAT FOOD?



Starting NOW, Eat Right!

The results of a study from Harvard are no surprise, but deserve mentioning as a reminder that it is never too soon to slow the aging process. Using data from 10,670 women in the Nurses' Health Study with no major chronic diseases at the start of the study in 1984, the researchers compared

the women's diets in their early years to their health 15 years later. Results showed that the healthier the women's diets when they were in their 50s and 60s, the better chance they had to age healthfully. Compared to the worst eaters, those who ate the best had a 34% greater likelihood of healthy versus typical aging. Those women who ate closer to the Mediterranean diet had a 46% greater likelihood of healthy aging with no major limitations in physical function and mental health. The researchers conclude that, "...better diet quality in midlife seems to be strongly linked to greater health and well-being in person's surviving to older ages."

Samieri C, Sun Q, Townsend M, et al: The association between dietary patterns at midlife and health in aging. Annals of Internal Medicine 2013;159:584-591.

researchers at King's College in London. *American Journal of Gastroenterology* 2014;January 21st.

Seniors who follow a traditional Mediterranean diet have a low risk for developing painful narrowing of the arteries in the legs, state researchers at the University of Navarra in Spain. *Journal of the American Medical Association* 2014;January 22nd.



E-xactly What Your Brain Needs

Vitamin E supplementation slowed the progression of Alzheimer's disease in a study from a long list of respected institutions, including the University of Pennsylvania Medical School and VA Medical Centers across the country. In this double-blind, placebo-controlled, randomized clinical trial, 613 patients with mild to moderate Alzheimer's received daily either placebos or 2,000 IU of vitamin E (as alpha tocopherol) with or without the medication memantine (a prescription drug for the treatment of Alzheimer's). At the end of the five year study, those patients who received vitamin E showed significantly slower functional decline compared to the placebo group. There was no difference in the groups receiving memantine alone or memantine plus vitamin E.

IN PERSPECTIVE: *This study presents strong data on the safety of vitamin E, at high doses, and dismisses previous questions raised about the safety of this essential nutrient. The authors' stated, "In contrast to the conclusion drawn from a*

Fish Really Is Brain Food!

Some wives' tales actually were ahead of their time! Researchers at the University of South Dakota's Sanford School of Medicine report that the more omega-3-rich fish people eat, the less likely they will lose precious brain cells as they age. Omega-3 fatty acid levels in red blood cells were measured in more than 1,000 women. At the end of eight years, when the average age of those women was 78-years, MRI scans measured brain volumes. Women whose omega-3 levels were twice as high had a 0.7 percent higher brain volume, which is the equivalent of delaying the normal loss of brain cells that comes with aging by one to two years, state the researchers. Higher omega-3 levels also were linked to a greater volume in the brain's memory center, the hippocampus.

Pottala J, et al: Neurology 2014;January 22nd, published online

2005 meta-analysis of vitamin E, which showed that high-dose vitamin E (≥ 400 IU/d) may increase the risk of all-cause mortality, we found no significant increase in mortality with vitamin E."

Dysken M, Sano M, Asthana S, et al: Effect of vitamin E and memantine on functional decline in Alzheimer disease. Journal of the American Medical Association 2014;311:33-44.

Vitamin D for ALS

Researchers at the Mayo Clinical College of Medicine in Rochester, MN studied the effects of vitamin D levels in patients with amyotrophic lateral sclerosis (ALS). Vitamin D levels were checked in 37 patients with ALS. Demographic data, vitamin D supplementation, change in Amyotrophic Lateral Sclerosis Functional Rating Scale (ALSFRS-R) score, and side effects from vitamin D were noted over a nine month follow-up period. ALSFRS-R scores were compared between patients who took vitamin D and those who did not. The average age was 55 years and the average time since symptom onset was 61 months.

Results showed that the average vitamin D level was 22.3ng/mL (normal range, 30-80ng/mL). More than 80% of patients had a vitamin D level lower than 30ng/mL and 43% had a vitamin D level lower than 20ng/mL. Twenty patients took 2,000 Units daily of vitamin D and the ALSFRS-R score decline was smaller in patients who had supplemented for at least nine months compared to patients who did not supplement or had supplemented for a shorter amount of time. Average vitamin D levels rose from 18.5 to 31.0 ng/mL at six months in the group taking vitamin D supplements. No side effects from vitamin D supplementation were reported.

The researchers conclude that, "Vitamin D supplementation at 2,000 international units daily was safe over a period of 9 months and may have a beneficial effect on ALSFRS-R scores."

Karam C, Barrett M, Imperato T, et al: Vitamin D deficiency and its supplementation in patients with amyotrophic lateral sclerosis. Journal of Clinical Neuroscience 2013;20:1550-1552.

Vitamin D Against Parkinson's Disease

Parkinson's patients who maintain optimal blood levels of vitamin D think more clearly and maintain better moods compared to patients with marginal vitamin D status. Researchers at Portland VA Medical Center in Portland, Oregon analyzed blood vitamin D levels in almost 300 patients with Parkinson's disease and compared those values to mood and mind. Results showed that higher blood levels of vitamin D were associated with less severe physical symptoms, better thinking ability, and lower risks for depression. The effects were strongest in those patients without dementia.

IN PERSPECTIVE: *Almost one third of Parkinson's patients battle cognitive impairment and dementia. That dementia is associated with increased chance of being placed in a nursing home facility and a shortened life expectancy. Anything that can improve cognition has the potential to improve quality and length of life in these patients.*

Peterson A, Murchison C, Zabetian C, et al: Memory, mood, and vitamin D in persons with Parkinson's disease. Journal of Parkinson's Disease 2014;3:547-555.

Petersen M, Bech S, Christiansen D, et al: The role of vitamin D levels and vitamin D receptor polymorphism on Parkinson's disease in the Faroe Islands. Neuroscience Letter 2014;January 3rd.

Meat Is a No No

People who frequently eat red meat, especially processed meats, are at highest risk for dying prematurely, according to a study from the Karolinska Institute. In this meta-analysis that summarized the evidence from nine prospective studies, the researchers found that all-cause mortality increased 10% in people who consumed the most red meat compared to those who ate the least, and rose by 23% for people eating processed meats, such as luncheon meats, hot dogs, bacon, sausage, pepperoni, and ham. People who ate the most red meat and processed meat showed a 29% increased risk for premature death from any cause.

Larsson S, Orsini N: Red meat and processed meat consumption and all-cause mortality. American Journal of Epidemiology 2014;179:282-289.



Crossing Over Into Memory Land

It is suspected that the more of the omega-3 fats, especially DHA but also EPA, found in brain tissue, the lower the risk for dementia, such as Alzheimer's. But, can these dietary fats make it through the blood-brain barrier, and

once there, could they possibly lowering Alzheimer's risk? According to a study from the Karolinska Institute in Stockholm, the answer to both those questions is - YES! In this six-month study, patients with mild Alzheimer's disease consumed daily either placebos or omega-3 supplements rich in DHA. Patients who received the DHA supplements showed higher levels of two major forms of omega-3s in their cerebrospinal fluid, DHA and EPA. The placebo group showed no change. The concentration of DHA in this fluid was linked directly to the degree of change in Alzheimer's symptoms and in markers for inflammation. (A reduction in inflammation has been shown in previous studies to be important in treating dementia.) The researchers conclude that DHA from supplements crosses the blood-brain barrier. Further research is needed to help sort out how the omega-3s can be used to slow or halt memory loss in the treatment of Alzheimer's disease.

For Eyes' Sake, Don't Forget to Take Lutein

Back in 2008, a study from the Jean Mayer US Department of Agriculture Human Nutrition Research Center on Aging at Tufts University found an association between improved cognition and adequate intake of a combination of lutein (a carotenoid that makes up the filtering pigment in the eye's macula) and the omega-3 fatty acid DHA. Now, researchers suspect that lutein in the macula is a marker for cognitive function in seniors. Blood and macular pigment density levels of carotenoids were measured in 108 seniors and compared to results from eight cognitive tests designed to measure memory and processing speed. Results showed that the level of lutein (and zeaxanthin, another carotenoid) in macular tissue of the eye was significantly linked to global cognition, verbal learning and fluency, recall, and processing speed and perceptual speed. As lutein and zeaxanthin levels increased in the macula, so did cognitive scores.

For reasons other than antioxidant activity, lutein appears to enhance cognitive function, state researchers at USDA's Human Nutrition Research Center on Aging in Boston.

IN PERSPECTIVE: *A wealth of research shows that increasing intake of lutein and zeaxanthin lowers the risk for developing cataracts and macular degeneration, the two main causes of vision loss in seniors. This study suggests these carotenoids also lower the risk for cognitive decline as we age.*

Johnson E, McDonald K, Caldarella S, et al: Cognitive findings of an exploratory trial of docosahexaenoic acid and lutein supplementation in older women. Nutritional Neuroscience 2008;11:75-83.

Vishwanathan R, Iannaccone A, Scott T, et al: Macular pigment optimal density is related to cognitive function in older people. Age and Ageing 2014;January 15th.

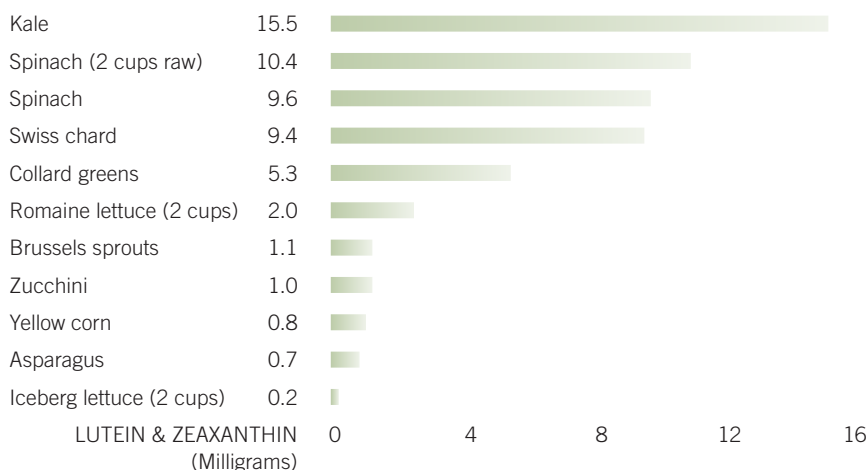
Johnson E, Vishwanathan R, Johnson M, et al: Relationship between serum and brain carotenoids, alpha tocopherol, and retinol concentrations and cognitive performance in the oldest old from the Georgia Centenarian Study. Journal of Aging Research 2013;2013:951786.

IN PERSPECTIVE: *The results of this study are especially newsworthy since previous studies show that Alzheimer's patients have low levels of the omega-3 fat DHA in their cerebrospinal fluid.*

Freund Levi Y, Vedin I, Cederholm T, et al: Transfer of omega-3 fatty acids across the blood-brain barrier after dietary supplementation with a docosahexaenoic acid-rich omega-3 fatty acid preparation in patients with Alzheimer's disease: The OmegaAD study. Journal of Internal Medicine 2013;November 23rd.

LUTEIN & ZEAXANTHIN TO THE RESCUE: AIM FOR AT LEAST 10 MILLIGRAMS A DAY!

(1/2 cup cooked each, unless otherwise stated)



Eat Your Way to Happiness!

Diet really does make a difference when it comes to mood. Researchers at the University of Newcastle in Australia reviewed six databases comparing depression rates to dietary intakes. A total of 21 studies were identified and findings were pooled. Results showed that diets rich in colorful fruits and vegetables, fatty fish, and whole grains were associated with a 16% lower risk for depression.

Lai J, Hiles S, Bisquera A, et al: A systematic review and meta-analysis of dietary patterns and depression in community-dwelling adults. American Journal of Clinical Nutrition 2014;99:181-197.



More Reasons to Eat Like a Greek

You already know that adopting a Mediterranean-like diet lowers the risk for almost every disease imaginable. Now, researchers at Tufts University's USDA Human Nutrition Research Center on Aging in Boston report that two foods in that diet - nuts and olive oil - can lower the risk for strokes in older people whose genetic make-up increases their risk for diabetes. Researchers randomly assigned 7,018 people, ages 55- to 80-years, to a low-fat diet, a Mediterranean diet high in nuts, or a Mediterranean diet high in extra-virgin olive oil. Some of the participants had a genetic trait in common - they shared a mutation in a gene that increases the risk for type 2 diabetes by as much as 50%. At the end of five years, results showed that those people with the mutation who followed the low-fat diet were almost three times more likely than others to have a stroke, but those on the Mediterranean diets had a risk about equal with those without the genetic mutation. The researchers conclude that "...switching to a Mediterranean diet ...will help those people with risk factors or a family history of disease." Apparently, even incorporating a few elements of that diet, in this case nuts and/or olive oil, can be helpful.

Corella D, Carrasco P, Sorli J, et al: Mediterranean diet reduces the adverse effect of the TCF7L2-rs7903146 polymorphism on cardiovascular risk factors and stroke incidence. *Diabetes Care* 2013;August 13th.

What Exactly Is This Mediterranean Diet?

This healthy diet is a far cry from what you'll find in most Greek restaurants. In order to qualify as a traditional Mediterranean diet, the daily menu should contain:

Daily	Food
6 servings	colorful vegetables, such as broccoli, tomatoes, carrots, or green beans
5 servings	colorful fruit, such as oranges, berries, or watermelon.
4 servings	grains, preferably whole grains
3 oz	extra-lean meat or poultry
1 oz	fatty seafood, such as salmon
2 servings	milk or yogurt (no flavored or with added sugars)
1/3 serving	legumes, such as cooked beans, lentils, split peas
2 servings	olive oil (1 tablespoon each)

HOT TOPICS: Frequent consumption of chocolate containing at least 70% cocoa powder increased HDL-cholesterol and lowered inflammation in a study from the University of Tor Vergata in Rome. *European Review for Medical and Pharmacological Sciences* 2013;17:2257-2266.

In a study from Maastricht University in The Netherlands, researchers found a large percentage of children and adults over the age of 40-years were deficient in vitamin K and would benefit from supplementation. *Food & Function* 2013; December 2nd.

The Trick for Nut Dying

Nibbling on nuts might be the fountain of youth. Researchers at Harvard Medical School compared all-cause mortality rates among 76,464 women in the Nurses' Health Study and 42,498 men in the Health Professionals Follow-up Study. Nut consumption was monitored at baseline and updated every two to four years. Results showed that people who ate one-ounce of nuts every day showed a 20% decrease in risk for dying from any cause during the subsequent three decades, compared to people who didn't eat nuts. While the study did not prove cause and effect, it did find that eating nuts also was linked to lower risks for dying from cancer, heart disease, and respiratory diseases.

In another study from the same researchers, frequent consumption of nuts was linked to a lower risk of developing pancreatic cancer in women.

A study from Brigham and Women's Hospital in Boston found that women who eat nuts during pregnancy (assuming they aren't allergic to nuts) are less likely to have children with nut allergies.

Bao Y, Han J, Hu F, et al: Association of nut consumption with total and cause-specific mortality. *New England Journal of Medicine* 2013;369:2001-2011.

Bao Y, Hu F, Giovannucci E, et al: Nut consumption and risk of pancreatic cancer in women. *British Journal of Cancer* 2013;109:2911-2916.

Frazier A, Camargo C, Malspeis S, et al: Prospective study of peripregnancy consumption of peanuts or tree nuts by mothers and the risk of peanut or tree nut allergy in their offspring. *JAMA Pediatrics* 2013;December 23rd.

Omega-3s Aid in Liver Disease

A study on rats from Oregon State University on the metabolic effects of omega-3s, especially DHA, concludes that these fats might have an even wider range of biological importance than previously thought, and concludes they could be of significant value in the prevention of nonalcoholic fatty liver disease. Livers from rats fed either Western diets or diets enriched with olive oil were analyzed for metabolites that reflect the many biological effects of omega-3 fatty acids on the liver.

Results showed that livers from these animals showed structural and gene expression changes consistent with nonalcoholic steatohepatitis. However, the livers of animals who had been fed DHA-fortified diets produced surprising results. DHA appeared to partially or totally prevent metabolic damage through those pathways often linked to the Western diet - excessive consumption of red meat, sugar, saturated fat, and processed grains. "We were shocked to find so many biological pathways being affected by omega-3 fatty acids. Most studies on these nutrients find effects on lipid metabolism and inflammation.

Our metabolomics analysis indicates that the effects of omega-3 fatty acids extend beyond that, and include carbohydrate, amino acid and vitamin metabolism," concluded the researchers.

Depner C, Traber M, Bobe G, et al: A metabolomic analysis of omega-3 fatty acid-mediated attenuation of Western diet-induced nonalcoholic steatohepatitis in LDLR 9-/- mice. *PLoS One* 2013;8:e83756.



HOT TOPICS

1 Vitamin D supplementation increased muscle-specific vitamin D receptors and increased muscle fiber size by 10% in older women, in a study from Tufts Medical Center in Boston. *Journal of Clinical Endocrinology and Metabolism* 2013;October 9th.

2 Researchers at Harvard Medical School argue that Alzheimer's disease might be prevented by 1) limiting intake of iron in red and processed meats, 2) increasing the intake of chlorophyll-derived magnesium, and 3) increasing intake of foods rich in polyphenolic compounds. *Frontiers in Human Neuroscience* 2013;7:735.

3 A high-fat diet combined with low intake of magnesium increases the risk for insulin resistance and diabetes, according to a study from the University of Sao Paulo, Brazil. *Clinical Nutrition* 2013;October 16th.

4 Risk for developing esophageal cancer decreases as consumption of colorful fruits and vegetables increases, state researchers at Curtin University in Perth, Australia. *Diseases of the Esophagus* 2013;October 23rd.

5 A diet that contains meat and other acidic foods causes an acid load in the body associated with a higher risk for type 2 diabetes, according to a study from the Center for Research in Epidemiology and Population Health in Paris. *Diabetologia* 2013;November 11th.

6 People who follow a heart-healthy diet and lifestyle also benefit by improving bone density and lowering risk for osteoporosis, according to a study from Tufts University. *American Journal of Clinical Nutrition* 2013;98:1309-1316.

7 Seniors boost brain function when they include daily aerobic activity in their lives, according to a study from the Center for Brainhealth at the University of Texas, Dallas. *Frontiers in Aging Neuroscience* 2013;November 12th.

8 People's risk for having a heart attack goes up as their body weight increases, even if they appear otherwise "healthy," according to a study from the University of Copenhagen. *JAMA Internal Medicine* 2013;November 11th.

9 A combination supplement of red yeast rice, policosanols, and artichoke leaf extracts lowered LDL-cholesterol in patients with hypercholesterolemia in a study from Laboratoire Lescuyer in Aytres, France. *International Journal of Food Sciences and Nutrition* 2013;64:882-889.

10 Vitamin D supplementation reduced the symptoms of bronchial asthma in children, in a study from Rao Tula Ram Memorial Hospital in New Delhi, India. *Indian Journal of Pediatrics* 2013;November 6th.

11 Supplementation with 50,000 Units of vitamin D3 every month throughout the winter is effective in White athletes to maintain blood vitamin D levels of more than 80 nmol, as long as those blood levels are optimal to begin with, says researchers at the English Institute of Sport in Bath, UK. *British Journal of Sports Medicine* 2013;47:e4.

12 Elevated homocysteine levels lowered memory, while vitamin B supplementation might be warranted to mitigate the disabling impact on cognition, according to researchers at the University of Western Australia in Perth. *Journal of Affective Disorders* 2013;151:646-651.

13 In a study from Washington University School of Medicine in St. Louis, researchers found that 1,640 IU of vitamin D daily was required to reach recommended blood levels of the vitamin in African Americans, and 4,000 IU was needed to reach levels estimated to lower cancer and heart disease risk. *American Journal of Clinical Nutrition* 2013;December 24th.

14 The more physically active women are the lower their risk for developing Crohn's disease, according to a study from Massachusetts General Hospital in Boston. *British Medical Journal* 2013;347:f6633.

15 People who remain physically active as they age have a lower risk for depression, dementia, cancer, heart disease, and diabetes, state researchers at University College London. *British Journal of Sports Medicine* 2014;48:239-243.

16 A daily multi-vitamin with selenium helps lower the risk that untreated people with the AIDS virus will get sicker in the following two years, state researchers at Florida International University in Miami. *Journal of the American Medical Association* 2013;310:2154-2163.

17 A University of California, San Francisco study found that being overweight increases the chances of developing kidney disease. *American Journal of Kidney Disease* 2013;November 29th.

18 Cognitive function is compromised when people are overweight or obese, but improves somewhat following bariatric surgery, according to a study from Kent State University. *Obesity* 2014;22:32-38

19 More than 90% of Americans - kids, teens, and adults - consume too much salt, increasing the risk for high blood pressure, the leading cause of heart attack and stroke, according to the Centers for Disease Control and Prevention in Atlanta. *Morbidity and Mortality Weekly Report* 2013;December 20th.

20 Results from a study on rats in India found that diets enriched with vitamin B12 and the omega-3 fat DHA improved synaptic plasticity and cognition, which has been shown in previous studies to enhance mental health and prevent neurocognitive disorders. *Brain Development* 2014;January 10th.



The Anti-Cancer Diets

What you choose to put on your plate could determine whether or not you develop head and neck cancers, according to a study from the National Cancer Institute and AARP in Washington, D.C. Using the USDA's Healthy Eating Index and the alternate Mediterranean Diet Score, the incidence of head and neck cancers in a group of 494,967 people was monitored over a nine year period. During that time, a total of 1,868 cancer cases were identified. Results showed that people who scored highest on the Healthy Eating Index had 26% to 52% lower cancer risk, for men and women respectively. Men who most closely followed the alternate Mediterranean diet lowered their cancer risk by 20%, while women doing the same had a 58% lower risk compared to people in the lowest quartile for this diet plan. It appears from this study that people who eat healthfully might expect lower risks for developing head and/or neck cancers down the road.

Li W, Park Y, Wu J, et al: Index-based dietary patterns and risk of head and neck cancer in a large prospective study. American Journal of Clinical Nutrition 2014; January 8th.

NUTRITION ALERT

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REVIEW

Busting Diet Dogma

Diet dogma has a life of its own. Even when science reveals the truth behind a diet fad or web rumor, the myth lingers. Here are a few mistaken identities in the diet arena.

1. Skipping meals is a good way to lose weight. Just the opposite. Research repeatedly shows that people who eat regularly, starting with breakfast, have lower body weights are better nourished, think more clearly, and feel better than people who eat erratically.
2. Fat makes you feel full, so you actually end up eating less. Fat is the slowest food component to clear the stomach, so for years it was assumed that fatty foods slowed digestion and kept you feeling full longer. More recent research has dispelled this myth, showing that protein has more of a satiating effect than either carbs or fat.
3. Eating healthy costs too much. You don't need to go broke to eat well. After all, pound for pound, health-boosting oatmeal, beans, and apples are a whole lot cheaper than eggs and bacon, steak, or even chips. To pare down the food bill, buy less expensive produce such as apples, oranges, carrots, and cabbage; look for specials and use coupons; buy in bulk items such as oatmeal, rice, nuts, and staples; shop at warehouse clubs where larger quantities also are less expensive; switch to beans which are much less expensive than meat; bring food with you so you're not tempted to impulse buy expensive items; and buy generic store brands of frozen vegetables, canned fruit, milk, and other items that typically cost less than brand names.
4. With the right diet, you can burn cellulite. There is no such thing, medically speaking, as cellulite. It's a pretend name for plain, old pudge that ripples, puckers, and waffles, mostly on the thighs, in varying degrees in up to 90% of women regardless of dress size or fitness level. This clumpy fat results from fat cells stored just under the skin in honeycomb-like structures held in place by bands of connective tissue. The more fat stuffed into each honeycomb, the more puckered the texture. A calorie-controlled, healthy diet plus exercise helps you lose weight, especially fat weight, and improve your appearance if you are overweight.
5. There is no such thing as "good foods" and "bad foods." In a country faced with epidemics of obesity, heart disease, diabetes, and high blood pressure, and a population where indulgence is a daily routine, what is good about a fried pork rind? Nutrition-wise a can of cheese whiz doesn't hold a candle to a mango!
6. If you work out, your body requires more protein. The majority of people who exercise don't need any more protein than the average couch potato. Most Americans consume ample protein, averaging 82 grams a day, or 164% of the recommended intake. The stress of resistance exercise adds to muscles' size and strength, not extra protein in a steak or protein supplements. If it were true a high-protein diet was important for building muscles, everyone on the Atkins-type diet would look like Charles Atlas.

Zamora S, Perez-Llamas F: Errors and myths in feeding and nutrition. Nutrition Hospitalaria 2013;Supple 5:81-88.
Casazza K, Fontaine K, Astrup A, et al: Myths, presumptions, and facts about obesity. New England Journal of Medicine 2013;368:446-454.

HOTTOPIC: Lycopene, a carotenoid found in watermelon, might lower breast cancer risk, according to a study from Nakamura Gakuen University in Japan. *Cancer Science 2014;January 8th.*