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VEPACHEDU EDUCATIONAL FOUNDATION

The Telangana Science Journal

Health and Nutrition

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Mushrooms

When mushrooms are exposed to ultraviolet radiation which is part of natural sunlight, they synthesize vitamin D. This vitamin is very important to enable the body to maintain healthy teeth and bones. It is also being seen as important in reducing the risk of cancer, autoimmune diseases, heart disease and infections. Recent studies show that most people in Western nations are severely low on vitamin D, despite the fact that skin cancer is rising. In a bid to protect the face skin from the negative effects of sunshine, such as cancer and wrinkles, many people are wearing sunscreen, which also prevent vitamin D generation. According to mushroom researchers, mushrooms may well be the answer as just three ounces



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of mushrooms exposed to a short ultraviolet radiation burst will provide the daily requirement of vitamin D.

The American Way

Americans spend less of their income on food than any other civilization in history. We demanded cheap food. And we've gotten it. But at a heavy price, according to Jonathan Safran Foer's new book "Eating Animals," 352 pages, \$25.99.... Americans eat way too much meat-approximately 150 times more chicken than we did 80 years ago. And, indeed the farmer acknowledges that much of this could be improved if people would just "eat less meat. But I've got news for you: people don't want to eat less meat." ... factory farmed chickens often soak up 11 percent of their sale weight while cooling in a post-slaughter bath of "fecal swill." And that's fecal swill you get to pay for. No wonder a new report showed two thirds of store bought chickens are contaminated with salmonella and camphylobacter.... a factory farmer admits that the reason he treats the animals the way he does and engages in unhealthy environmental practices is because consumer demands for cheapness mean "you gotta make an animal that produces more of product at a lower cost"... "which can be counterproductive to its welfare." ... "Eating Animals" offers up required reading for anyone who strives to be more conscious what they're eating and practices they are supporting with their food choices.

<http://www.chicagotribune.com/features/books/chi-books-reviews-eating-animals-safran-foer,0,610927.story>

Western Diet Causes ADHD

After controlling for all the other variables, adolescents in the 'high' group for the Western dietary pattern were more than twice as likely as those in the 'low' group to have been diagnosed with ADHD. These results were consistent for boys and girls.

- The 'Western' Dietary Pattern is associated with higher intakes of total fat, saturated fat, refined sugars, and sodium. Specific food types prominent in the Western diet included 'takeaway' foods, red meat, processed meats, soft drinks, full fat dairy products, soft drinks, sugary foods, and fried foods.
- The 'Healthy' Dietary Pattern is associated with omega-3 fatty acids, fiber, and folate. Prominent foods in the healthy diet included all types of vegetables, fresh fruit, whole grains, and legumes.

Adolescents received scores on both diet patterns based on parents' responses about their typical food intake. Those above the mean were classified as 'high' for that pattern and those below the mean were classified as 'low'. Thus, each adolescent was placed in a high or low group for both the Westerns style

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and Healthy diets. By classifying participants in this way, the researchers could examine whether being high vs. low for a Western diet and a Healthy diet was associated with an increased likelihood of being diagnosed with ADHD. When the authors looked at specific food groups, high consumption of fast food, red meat, processed meats, and high-fat dairy products, potato chips, and soft drinks were all associated with increased risk of an ADHD diagnosis. The study published recently online in the Journal of Attention Disorders [Howard et. al. (2010)].

Sleep Deprivation & Starvation

Young adults who get fewer than eight hours of sleep per night have greater risks of psychological distress, a combination of high levels of depressive and anxious symptoms, according to a study in the Sept. 1 issue of the journal *Sleep*. The study also found that the risk for the onset of psychological distress was increased only in those young adults with extremely short sleep durations. Participants without psychological distress at baseline who reported sleeping five hours or less per night were three times more likely to be distressed one year later (RR 3.25).

As anyone who has ever struggled to keep his or her eyes open after a big meal knows, eating can induce sleepiness. New research in fruit flies suggests that, conversely, being hungry may provide a way to stay awake without feeling groggy or mentally challenged. Scientists at Washington University School of Medicine in St. Louis found in a study of fruit flies that starvation allows the need for nourishment to push aside the need for sleep. Like humans and rats, fruit flies cannot survive without sleep. But in a line of flies engineered to be sensitive to sleep deprivation, starvation nearly tripled the amount of time they could survive without sleep. The findings are published in the online, open access journal PLoS Biology.

Thyroid and Life Span

After rating the longevity of siblings' parents, a research team analyzed the thyroid hormones in the siblings' blood. The two sets of values appeared to be strongly linked, supporting previous findings of heritability in decreased thyroid functioning and its relationship to long life. This result held up even after accounting for critical illness, which can also affect thyroid activity. From its location in the neck, the thyroid secretes hormones that affect metabolism. The researchers suggest that the lower activity of thyroid hormones could shift the body's energy expenditure away from growth and proliferation in favor of protective maintenance, keeping the body healthier longer. However, other factors could be associated with both thyroid function and longevity, removing credit from the thyroid. These results may come as a surprise as low thyroid function is commonly regarded as a risk factor for cardiovascular disease. The



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prevailing recommendation therefore is to treat elderly with low thyroid function with hormone supplementation.

Mexican-Americans May Get Breast Cancer Earlier

Mexican-American women are diagnosed with breast cancer 10 years earlier than other women, a study released this month finds. Their average age at diagnosis was 50.5. The national average is 61. Nearly half of the Hispanic women had been diagnosed before age 50 and more than one-fifth before age 40. A panel of experts recommended last year that routine mammograms begin at 50. That advice came from the U.S. Preventive Services Task Force. Women also were advised to talk to their doctors about possible earlier tests for some people. The American Cancer Society still urges women to start having mammograms at age 40. The journal *Cancer* published it online.

Glucosamine and Chondritin

European researchers analyzed the results of 10 past trials in 3,803 patients who took glucosamine, chondroitin or a placebo to treat arthritis in their hips or knees. They found neither supplement, taken either separately or together, did any better than a placebo. The study was conducted by the Institute of Social and Preventive Medicine at the University of Bern in Switzerland, paid for by the Swiss National Science Foundation and was published in the journal *BMJ*. For the past decade, glucosamine and chondroitin have been recommended by doctors to treat arthritis in the hip or knee. The supplements are components of human connective tissues found in cartilage and bone. Globally, sales of glucosamine supplements hit nearly \$2 billion in 2008. Chronic arthritis in the hip or knee can be treated with drugs that reduce inflammation, but those can cause serious stomach and heart side effects if they are used in the long term.

Walking/Hiking

Regular hiking is a way to stay physically fit by improving the cardiovascular system, strengthening the body's immunity and boosting metabolism. At least two walks a week lasting between 30 and 45 minutes each improve physical health. Unfortunately, most people do not invest that much time. Hiking is recommended for anyone who has a healthy heart, but not for those who have problems with joints or with inflammations. You should also be careful if you are overweight. It's also important to protect joints and to avoid excessive hiking sessions.



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A study conducted recently led the researchers to suggest that "public-health messages and guidelines should be refined to include reducing time spent sitting in addition to promoting physical activity." Several recent studies revealed that lengthy periods of sitting, despite some early morning exercise, will still result in higher risk of health problems.

Massage

A recent study has shown that people who have massages gain the benefit of a 'tuned' immune system, in addition to the well known benefits such as reduction of stress and tension. There were three measured benefits that the Swedish massage volunteer group experienced. One was a reduction in cortisol levels which is an adrenal gland hormone that gets released when stress levels go up. The second was a reduction in arginine vasopressin which is a hormone that is connected to aggressive behavior. The third was a major increase in the disease fighting and preventing lymphocytes (white blood cells) in the body. The Journal of Alternative and Complementary Medicine published the study.

Swedish massage was pioneered by a Swedish physiologist, Henri Peter Ling, at the University of Stockholm in 1812. Swedish massage is the most commonly offered and best-known type of massage.
<http://www.youtube.com/watch?v=ywy6fn99LaQ>

Superbug Gene from India and Antibiotics

A new gene that can turn many types of bacteria into superbugs resistant to nearly all antibiotics has sickened people in three states and is popping up all over the world, health officials reported. The U.S. cases and two others in Canada all involve people who had recently received medical care in India, where the problem is widespread. A British medical journal revealed the risk last month in an article describing dozens of cases in Britain in people who had gone to India for medical procedures. How many deaths the gene may have caused is unknown; there is no central tracking of such cases. So far, the gene has mostly been found in bacteria that cause gut or urinary infections. Scientists have long feared this -- a very adaptable gene that hitches onto many types of common germs and confers broad drug resistance. India is a continental country with 1/5th of humanity that overuses antibiotics and has widespread infectious disease and without clean water. The gene can spread hand-to-mouth, which makes good hygiene very important and drinking only bottled or boiled water when in India.

American patients traveling in India contracted the infections when they were hospitalized or got sick. All survived. The California woman needed hospital care after being in a car accident in India. The Illinois man had pre-existing medical problems and a urinary catheter, and is thought to have contracted

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an infection with the gene while traveling in India. The case from Massachusetts involved a woman from India who had surgery and chemotherapy for cancer there and then traveled to the U.S.

Indiscriminate use of antibiotics may cause resistance. Antibiotics aren't choosy and can kill off good germs as well as bad ones. Not only antibiotics can temporarily upset your stomach, but now it turns out that repeatedly taking them can also trigger long-lasting changes in all those good germs that live in your gut, raising questions about lingering ill effects. Nobody yet knows if that leads to later health problems. But the finding is the latest in a flurry of research raising questions about how the customized bacterial zoo that thrives in our intestines forms - and whether the wrong type or amount plays a role in ailments from obesity to inflammatory bowel disease to asthma. In the not-so-healthy, scientists have discovered that overweight people harbor different types and amounts of gut bacteria than lean people, and that losing weight can change that bacterial makeup. They've also found links to other digestive diseases, precancerous colon polyps - and even are pursuing a theory that early use of antibiotics disrupts the developing microbiome in ways that spur autoimmune disorders like asthma or allergies.

Smoking

About one in 50 pregnancies is ectopic, meaning the baby starts to grow before entering the womb, usually in the fallopian tubes. ECTOPIC pregnancies occur when a fertilised egg implants outside the womb. This can happen anywhere in the abdominal cavity, but in 98 per cent of cases is in the fallopian tubes, and has to be surgically removed to prevent rupture. The condition is the leading cause of maternal mortality in the first three months of pregnancy.

Scientists at Edinburgh University have discovered why women who smoke have a higher risk of developing such pregnancies. The Edinburgh team found that female smokers who have had an ectopic pregnancy have raised levels of the protein PROKR1 in their fallopian tubes, increasing the risk of an egg implanting outside the womb. It is believed a chemical in cigarette smoke called cotinine triggers a chain reaction that increases PROKR1 in the fallopian tubes. While this protein allows the pregnancies to implant correctly inside the womb, its presence in the fallopian tubes is believed to increase the risks of the egg implanting somewhere else. The study, published in *the American Journal of Pathology*, found that women who smoked and developed an ectopic pregnancy had double the levels of this protein in their fallopian tubes compared with women who did not smoke and had previously had a healthy pregnancy. Researchers believe too much PROKR1 prevents the muscles in the fallopian tubes from contracting, which then hinders the transfer of the egg to the womb.

C-reactive protein (CRP)

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Levels of a blood protein linked to inflammation vary by race, a new study finds. The study looked at C-reactive protein (CRP). People with long-term high levels may be more likely to develop heart disease. Researchers reviewed 89 studies about CRP. They included more than 221,000 people. Researchers broke down CRP results for this large group by race. They found that blacks had the highest average level, 2.6 milligrams per liter (mg/L) of blood. Levels for Hispanics were nearly as high, 2.51. They were followed by Indians (South Asians) (2.34) and whites (2.03). (East) Asians had the lowest levels, an average of 1.01. Some doctors look at CRP levels to help them decide when someone needs treatment with a statin drug. These drugs reduce LDL cholesterol and inflammation. They have been shown to reduce heart disease deaths. But researchers said their study shows that different races would be more or less likely to have "high" CRP. The study was in the journal *Circulation: Cardiovascular Genetics*.

Indians in general are more insulin resistant than are whites. This difference has been demonstrated in several previous studies. Because higher waist-to-hip ratio has been reported in Indians living in United Kingdom compared with the local white population, a predisposition to abdominal fat distribution has been suggested as a possible explanation for the excessive insulin resistance in Indians. Indians also manifested a significant elevation of plasma hs-CRP compared to white, according to a 2003 study in *Clinical Endocrinology and Metabolism*.

The factors that indicate an increased risk of heart disease and stroke are well established in medical practice. They provide enough guidance for the great majority of adults. So your first line of defense is to control these factors. How can you do this?

- Avoid tobacco products.
- Eat a vegetarian or Mediterranean-style diet, by loading up on fruits, vegetables and whole-grain foods.
- Eat healthy sources of protein such as nuts and beans.
- Get regular exercise, according to your doctor's advice.
- Keep blood pressure in the normal range.
- Lower LDL cholesterol if it is too high.

Buddhist Cuisine

Dogen, the founder of Eihei-ji, was born in 1200 into an aristocratic family in Kyoto and entered the Buddhist priesthood at 14. He set up an ashram where he began preaching and, in 1244, built Eihei-ji temple at an almost inaccessible mountainous site. Dogen wrote books and *sutra* – collections of literary aphorisms – covering almost every aspect of the daily life of a Zen monk, even mundane acts such as

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washing or going to the lavatory. He believed that everyday routine – including food and cooking – was an important part of Zen training. *Tenzo Kyoukun* (Kitchen Instructions) was the first of six rulebooks he produced.

<http://www.ft.com/cms/s/2/fcaeb5a2-384c-11df-8420-00144feabdc0.html>

Recipes

Italian Rice and Beans

Ingredients: 1 14.5 ounce can diced tomatoes with Italian herbs (do not drain); 1 14.5 ounce can Great Northern or cannellini beans, drained; 2/3 cup instant rice; 1/2 tsp Italian seasoning; fresh pepper to taste.

Preparation: Place all ingredients in medium saucepan. Cook 3-4 minutes, covered, over medium-high heat. Uncover pan and continue cooking 2-3 minutes, or until rice is tender. Dish is slightly saucy when completely cooked.

<http://vegetarian.about.com/od/ricedishes/r/italianrice.htm?nl=1>

http://vegetarian.about.com/od/ricedishes/Vegetarian_Rice_Dishes.htm

Mango Rice

Ingredients: 1 tbsp olive oil; 3/4 cups onion, chopped fine; 1/2 cup green pepper, chopped fine; 1 cup tomatoes, diced; 1 can (15 ounces) black beans, drained (reserve liquid); 1/2 tsp thyme; 1 tsp garlic salt; 3 tbsp apple cider vinegar; 1/2 teaspoon hot pepper sauce; 2 cups cooked white rice; 1 mango, diced; lime wedges to garnish (optional)

Preparation: In large skillet heat olive oil; cook onion and green pepper until crisp tender; stir in tomatoes, beans, thyme and garlic salt, cook 3 minutes. Add vinegar, pepper sauce, and reserved juices, continue to cook for an additional 5 minutes. Serve black beans over cooked rice topped with diced mango. Garnish with fresh lime slices, and squeeze a bit of fresh lime juice on top just before eating.

<http://vegetarian.about.com/od/maindishentreerecipes/r/Cuban-Black-Beans-With-Mango.htm?nl=1>

Aubergine Parmigiana

Ingredients: 1 onion; 2 garlic cloves; 2 sprigs of thyme; Olive oil; 600g of peeled and chopped tomatoes; 20g of sugar; 4 large aubergines; 150g of mozzarella; 60g of finely grated Parmesan cheese.

Preparation: Peel and finely chop the onion and garlic and soften very gently with the sprigs of thyme in two tablespoons of olive oil for 15 minutes. Add the tomatoes, season with half a teaspoon of salt, the same of ground black pepper and the sugar. Mix well and stew this mixture very gently for a further 20

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minutes. Leave to cool. Peel the aubergines. Cut them into large slices just under half a centimeter thick. Heat a wide griddle pan or dry frying pan or similar. Brush the slices liberally with olive oil and lay them in the hot pan. Season with salt and pepper and color them well before turning and make sure they are cooked through before cooling on a tray. In a deep rectangular earthenware dish, proceed to build the parmigiana. Brush the base with olive oil and place a layer of aubergine slices over it. Sprinkle half the diced mozzarella and a little Parmesan on top, and then coat with tomato sauce. Avoid using so much sauce that the construction becomes sloppy: it should be just enough to moisten the whole. Add another layer of aubergines, repeat the cheese and tomato sauce treatment and then add a third layer of aubergine. Coat with a final layer of tomato sauce and then bake in a moderate oven, 160°C, for 50 minutes. Sprinkle Parmesan over the surface and then color under a hot grill or in a hot oven. Best served lukewarm.
<http://www.ft.com/cms/s/2/9c235dd4-c76a-11df-aeb1-00144feab49a.html>

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