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VEPACHEDU EDUCATIONAL FOUNDATION

The Telangana Science Journal

Health and Nutrition

TIACS-subscribe@yahoogroups.com (The Indian American Chemical Society)

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Clay is Good for You

Clays have been used as medical tools for ages, appearing in ancient medical texts going back as far as 3,000 B.C. Topically, they were used to treat wounds, a practice that became common in the 19th century. Early practitioners of clay therapy noted that clays tended to aid in healing, in reducing inflammation of wounds, and in pain management--though they couldn't have known why exactly. It turns out that's probably because some clays--particularly clays rich in a certain group of metallic ions--work as antibacterial agents. In their study, the ASU researchers tested a variety of different clays with similar mineral composition but ranging compositions of metallic ions against E. coli and MRSA. They found that five metal ions--iron, copper, cobalt, nickel, and zinc--could fight the two bacterial strains, both of which are increasingly difficult to kill using standard antibiotics and antibacterials.

Not all clays are created equal and some lack the required concentrations of the necessary metal ions. Clays contain poisonous metals, like cadmium, lead, mercury, and arsenic, as well. If you were paying attention in chemistry class 101, you would remember that these are not metals you want to introduce to your body.

Researchers have been using clays in chemical research for a long time and are optimistic that medicinal clays could find widespread use in certain therapeutic roles, particularly as bandaging agents as their absorptive and adhering characteristics make them somewhat ideal for sealing out external pathogens as well as absorbing and removing unwanted particulates or devitalized tissues from wounds--all while delivering a dose of antibacterial ions to the affected area.

Flax Oil

The polyunsaturated fatty acids (omega 3s) have long been thought to protect against cardiovascular disease. So, the American Heart Association currently recommends eating at least two servings of omega oils containing foods a week. However, the mechanism behind this protective effect still remains a mystery. In a new study shed light on this phenomenon by providing evidence that omega oil might specifically counteract the detrimental effects of mental stress on the heart. Their findings show that volunteers who took omega oil supplements for several weeks had a blunted response to mental stress in several measurements of cardiovascular health, including heart rate and muscle sympathetic nerve activity

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(MSNA), part of the "fight or flight" response, compared to volunteers who took olive oil instead. The results may explain why taking omega oil could be beneficial to the heart and might eventually help doctors prevent heart disease in select populations. The article appears in the May edition of the American Journal of Physiology – Regulatory, Integrative, and Comparative Physiology, <http://bit.ly/10j0CSS>.

Omega 3 oil supplements modestly increase amounts of a hormone that is associated with lower risk of diabetes and heart disease, according to a study accepted for publication in The Endocrine Society's *Journal of Clinical Endocrinology & Metabolism (JCEM)*. Omega 3 fatty acid capsules raise levels of adiponectin in the bloodstream, an important hormone that has beneficial effects on metabolic processes like glucose regulation and the modulation of inflammation. In long-term human studies, higher levels of adiponectin are associated with lower risks of type 2 diabetes and coronary heart disease.

A new research report appearing in *The FASEB Journal*, shows that naturally derived compounds from omega-3s may reduce the inflammation associated with these procedures to help arteries more fully and completely heal. <http://www.sciencedaily.com/releases/2013/05/130530111155.htm>

Corn Syrup

High-fructose corn syrup can cause behavioral reactions in rats similar to those produced by drugs of abuse such as cocaine. These results, presented by addiction expert Francesco Leri, Associate Professor of Neuroscience and Applied Cognitive Science at the University of Guelph, suggest food addiction could explain, at least partly, the current global obesity epidemic. These results were presented at the 2013 Canadian Neuroscience Meeting, the annual meeting of the Canadian Association for Neuroscience – Association Canadienne des Neurosciences (CAN-ACN). <http://scienceblog.com/63337/corn-syrup-can-act-as-an-addictive-drug/#o7PedVekHpHc0tBc.99>

Sleep and Depression

Researchers found that the amygdala responses in the insomniac group were significantly higher during reappraisal than during passive viewing. The amygdala is responsible for emotional processing and regulation. another study found that for every extra hour insomniacs slept, they were 72 percent less at risk for suicide. [According to the CDC](#), based on suicides in 16 National Violent Death Reporting System

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states, 23 percent of suicide decedents tested positive for anti-depressants. According to a the [National Sleep Foundation](#), 30 to 40 percent of adults report symptoms of insomnia while 10 to 15 percent say they have chronic insomnia. They say that most often, these people have chronic intermittent insomnia, or a period in which they experience difficulty sleeping for a few nights followed by a period of adequate sleep.

<http://www.medicaldaily.com/articles/15828/20130522/insomnia-affects-brains-emotion-regulator-lead-depression.htm#TIDbGOEk1bChsT1T.99>

Music and Anxiety

A study, which has been published online by the *Journal of the American Medical Association*, showed that ICU patients receiving acute ventilatory support for respiratory failure saw their anxiety levels decrease by an average of 36.5 percent when they had the option to listen to music. Those patients also saw a 38 percent reduction in the number of sedatives administered and a 36 percent reduction in the intensity of sedation versus those who did not receive the music intervention.

<http://www.redorbit.com/news/health/1112852252/music-therapy-can-help-in-the-icu-052113/>

Childhood Obesity and Hetero-sexual Marriage

What is the purpose of the age old institution of hetero-sexual marriage? There appears to be something about people who have hetero-sexual marriage and have a child that is fundamentally different than the other groups, and these factors are also linked to children's weight. Childhood obesity is a significant public health issue in our country, with nearly one-third of all U.S. children ages 2-17 overweight. In a recent edition of the *Journal of Applied Research on Children: Informing Policy for Children at Risk*, a study shows that Children living in households where the parents are married are less likely to be obese. There appears to be something about people who marry and have a child that is fundamentally different than the other groups, and these factors are also linked to children's weight. Any children raised in other groups, including single parent and step parent families, had an obesity rate of 15 percent.

Anti-aging Calorie Restriction

An enzyme, SIRT1, known to play a role in the anti-aging benefits of calorie restriction, delays the loss of brain cells and preserves cognitive function in mice, according to a study published in the May 22 issue of

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The Journal of Neuroscience. <http://www.sciencedaily.com/releases/2013/05/130521193952.htm>

According to a recent data analysis published in the April 30th issue of Nutrition Journal, adults who consume candy at least every other day are no more likely to be overweight nor have greater risk factors for cardiovascular disease (CVD) than moderate consumers (about once a week) or even less frequent candy eaters (less than 3 times per month). Almost all adults (96%) reported eating candy, but there is variability in frequency and quantity consumed at a given time. Previous research has shown that candy consumers are not more likely to be overweight or have greater risk factors for chronic disease than non-consumers of candy. This research showed that even the consumers who reported eating the most candy on a given day were not more likely to be at risk for increased weight or disease. Such findings were not surprising given the fact that the total calories in our food come in various forms including protein, fat and carbohydrates. http://www.eurekalert.org/pub_releases/2013-05/fl-nss051713.php

Iodine

Iodine is essential for the development of the brain as it is needed to build some of the body's hormones. A severe deficiency is [the leading cause of preventable brain damage](#) in the world. It was mainly thought of as a problem in developing countries, yet previous studies have also suggested that some women in the UK are mildly deficient. The impact of low-level deficiency was, however, previously unknown. A study showed that iodine deficiency was common - affecting two-thirds of women in south-west England. The advice, [published on the British Dietetic Association website](#), recommends that pregnant and breastfeeding women need 250 micrograms per day and other adults need 150mcg.

Bilinguals

A study, to be published in a forthcoming issue of Psychological Science, addresses enduring questions in bilingual studies about how bilingual speakers hear and process sound in two different languages.

A lot of research has shown that bilinguals are good at accommodating speech variation across languages. There are two views: One is that bilinguals have different processing modes for their two languages -- they have a mode for processing speech in one language and then another mode for processing speech in the other language. Another view is that bilinguals just adjust to speech variation by recalibrating to the

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unique acoustic properties of each language.

One of the reasons it sounds different when you hear a different language is because the actual sounds used are different; there is a sound code that's specific to that language. One of the reasons someone might sound like they have an accent if they learn Spanish first is because their 'pa' is like an English 'ba,' so when they say a word with 'pa,' it will sound like a 'ba' to an English monolingual. That is why one has to learn the phonetics of each language, to be able to distinguish the sounds and pronounce them properly. It would be easier if learned very young. This raises the possibility that bilinguals can perceive speech like a native speaker in both languages. <http://www.sciencedaily.com/releases/2013/05/130520163859.htm>

Women Live Longer

Researchers looked at the blood of healthy volunteers in Japan, ranging in age between 20 and 90 years old; in both sexes the total number of white blood cells per person decreased with age. The number of neutrophils decreased for both sexes and lymphocytes decreased in men and increased in women. Younger men generally have higher levels of lymphocytes than similarly aged women, so as aging happens, the number of lymphocytes becomes comparable.

The rate in decline in T cells and B cells was slower for women than men. Both CD4+ T cells and NK cells increased with age, and the rate of increase was higher in women than men. Similarly an age-related decline in IL-6 and IL-10 was worse in men. There was also an age-dependent decrease in red blood cells for men but not women. This difference in the aging of immune systems between men and women is one of many processes which alter as we grow older.

<http://www.sciencedaily.com/releases/2013/05/130514213056.htm>

Slow to detect large background?

Don't worry! People with higher IQs are slow to detect large background movements because their brains filter out non-essential information, say US researchers. People with higher IQ scores are faster at noticing the movement of the bars when observing the smallest image - but they are slower at detecting movement in the larger images. Because intelligence is a broad construct, it cannot be tracked back to one part of the brain.

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Sleep Better and Feel Good

Regular exercise does more than boost your energy. According to experts, working out can help you manage your weight, spice up your sex life, improve your mood, and promote better sleep. Exercising daily is also a healthy way to manage stress levels. Exercise helps your body produce endorphins -- the neurotransmitters in your brain that make you feel good. It also forces you to focus, helping you forget what's making you anxious. Exercising in warm, sunny weather can boost your mood. And if you walk briskly for at least 30 minutes, you'll meet daily exercise recommendations, and ramp up stress-busting benefits even more.

Published in the [Annals of Behavioral Medicine](#), a study looked at the overall levels of positive emotion that the participants experienced in their lives, those associated with more stable personality traits, as well as daily fluctuations in positive emotions in reaction to daily events.

Researchers found that having a more positive general outlook on life was associated with improved sleep quality – duh! But, of course, they also found that the more reactive or fragile a participant's positive emotions were in relation to external events, the more their sleep was impaired, especially for individuals high in positivity to begin with. Previous research suggests that the experience of joy and happiness may slow down the effects of aging by fortifying health-enhancing behaviors such as restorative sleep.

<http://www.futurity.org/top-stories/happy-heads-may-get-better-sleep/>

Every time you crack up, increased oxygen courses to your organs, blood flow increases, and stress evaporates. In fact, just thinking about having a good laugh is enough to lower your stress hormone levels. When you pet your pet even for just a few minutes, your body releases feel-good hormones like serotonin, prolactin, and oxytocin. At the same time, it decreases the amount of the damaging stress hormones that are released. That can mean lower blood pressure, less anxiety, and even a boost in immunity. Sex lowers blood pressure, boosts self-esteem, and increases feelings of intimacy with your partner. It can also help you sleep better, which is a great benefit when you've spent sleepless due to stress.

Researchers say vitamin C may help people manage their stress more effectively, in part by lowering

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levels of stress hormones like cortisol. As an added bonus, vitamin C-rich foods such as orange juice, grapefruit juice, strawberries, or sweet red peppers can help boost your immune system. Singing puts you in a better mood and makes feel less stressed. Singing also can be good for your breathing and posture, as well as your heart and immune system. Being surrounded by clutter contributes to stress and anxiety when you can't find things you are looking for. De-clutter a drawer, a shelf, or a tabletop at a time. An uncluttered space can feel satisfying and restorative, and the bonus is good exercise while cleaning, burning more than 250 calories an hour.

According to research, chewing a stick of gum also seems to reduce stress and anxiety, as well as improve mental performance during tasks. In one study, not only did gum chewers report they were less stressed, they were also less depressed and less likely to see a doctor for high blood pressure or high cholesterol. Taking a deep whiff of lavender or rosemary can put you into a more relaxed state. Inhaling those aromas can lower your levels of the stress hormone cortisol. But just the act of breathing deeply is also a stress buster. Deep breathing sends oxygen surging through your bloodstream, helping to calm your entire body.

Tomato and Soy

Prostate cancer is the most frequently diagnosed cancer in men, but the disease has nearly a 100 percent survival rate if it's caught early. In older men, it is often a slow-growing cancer, and these men often choose watchful waiting over radiation and surgical treatments that have unwelcome side effects.

Eating tomato, soy, and the combination all significantly reduced prostate cancer incidence. The combination gave the best results. Soy isoflavone serum and prostate levels in the mice are similar to those found in Asian men who consume one to two servings of soy daily. In countries where soy is eaten regularly, prostate cancer occurs at significantly lower levels. The results of the mouse study suggest that three to four servings of tomato products per week and one to two servings of soy foods daily could protect against prostate cancer. According to the scientists, these findings reinforce the recommendation that we should all eat a wide variety of whole fruits and vegetables. It's better to eat a whole tomato than to take a lycopene supplement. It's better to drink soy milk than to take soy isoflavones. When you eat whole foods, you expose yourself to the entire array of cancer-fighting, bioactive components in these foods. The researcher's whole-food recommendation is bolstered by the way soy germ performed in this study, because soy germ has a very different isoflavone profile than the rest of the soybean. The soy product used in the study, although low in genistein, was still very effective at reducing cancer incidence.

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Fats and Carbohydrate

Excessive daytime sleepiness and fatigue are very prevalent in the modern world and on the rise. Previous studies had found that diet composition affects subjective sleepiness. A new study in an online supplement of the journal *SLEEP* adds to this body of research by showing a similar association between diet and objective sleepiness. Results show that higher fat consumption was associated with increased objective daytime sleepiness, while higher carbohydrate intake was associated with increased alertness. There was no relationship between protein consumption and sleepiness or alertness. These findings were independent of the subjects' gender, age, and body mass index as well as the total amount of sleep they were getting and their total caloric intake.

<http://www.sciencedaily.com/releases/2013/05/130507164632.htm>

Scientists have discovered that fat cells in the knee secrete a protein linked to arthritis, a finding that paves the way for new gene therapies that could offer relief and mobility to millions worldwide. Rheumatoid arthritis is an autoimmune condition that gradually destroy bones, muscles, joints, cartilage and other connective tissue. Over 1% or about 1.3 million Americans suffer from it.

<http://scienceblog.com/62907/fat-triggers-rheumatoid-arthritis/#Tf2fH1ay3pjQA3Ru.99>

Nature and Nurture

The debate over why and how people become experts has existed for millennia. Many theorists argue that thousands of hours of focused, deliberate practice is sufficient to achieve elite status. Practice is indeed important to reach an elite level of performance. However, it is well known that it takes more than hard work to become an expert, because natural talent and other factors likely play a role in mastering a complicated activity. Some people do reach an elite level of performance without copious practice, while other people fail to do so despite copious practice. Based on existing research, factors such as intelligence or innate ability, and the age at which people start the particular activity have impact on once accomplishment. It is also well known that people with photographic memory will excel in their field of endeavor. A previous study suggested that working memory capacity, which is closely related to general intelligence, may sometimes be the deciding factor between being good and great. Even if one has the innate ability and photographic memory, without proper training it would be difficult to reach an elite

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level of expertise in any field. <http://medicalxpress.com/news/2013-05-practice-makes-perfect-not-so.html>

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Om! Asatoma Sadgamaya, Tamasoma Jyotirgamaya, Mrityorma Amritamgamaya, Om Shantih, Shantih, Shantih!

(Aum! Lead the world from wrong path to the right path, from ignorance to knowledge, from mortality to immortality, and peace!)

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