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# VEPACHEDU EDUCATIONAL FOUNDATION

## The Telangana Science Journal

### Health and Nutrition

[TIACS-subscribe@yahoogroups.com](mailto:TIACS-subscribe@yahoogroups.com) (The Indian American Chemical Society)

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#### **Olfactory Sense**

In animals ranging from invertebrates to humans, olfaction exerts a primal influence as the brain continuously and subconsciously processes the steady stream of scent molecules that waft under our noses. The Journal of Neuroscience reports that the brains of human subjects experience anxiety induced by disturbing pictures and text of things like car crashes and war transform neutral odors to distasteful ones, fueling a feedback loop that could heighten distress and lead to clinical issues like

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anxiety and depression. There are two distinct and typically independent circuits of the brain -- one dedicated to olfactory processing, the other to emotion -- which become intimately intertwined under conditions of anxiety. Although those two systems of the brain are right next to each other, under normal circumstances there is limited crosstalk between the two.

<http://www.sciencedaily.com/releases/2013/09/130924174150.htm>

There are 10 basic odor qualities: fragrant, woody/resinous, fruity (non-citrus), chemical, minty/peppermint, sweet, popcorn, lemon and two kinds of sickening odors: pungent and decayed. Senses such as hearing and vision can be discussed in terms that most people understand and that are tied to measurable physical phenomena. But the sense of smell, or olfaction, has thus far not lent itself to such a systematic understanding of what smells we perceive and how those perceptions relate to physical phenomena. <http://www.sciencedaily.com/releases/2013/09/130918180425.htm>

### Caffeine and Adolescence

Humans and other mammals show particularly intensive sleeping patterns during puberty. The brain also matures fastest in this period. Both in humans and in rats, the duration and intensity of deep sleep as well as the number of synapses or connections in the brain increase during childhood, reaching their highest level during puberty and dropping again in adult age. But when pubescent rats are administered caffeine, the maturing processes in their brains are delayed. Unfortunately, children's and young adults' average caffeine consumption has increased by more than 70 per cent over the past 30 years, and the drinks industry is posting its fastest-growing sales in the segment of caffeine-laden energy drinks. <http://www.sciencedaily.com/releases/2013/09/130924091323.htm>

Adolescence may not last forever but has been extended in the United Kingdom as child psychologists redefine maturity from 18 years of age to 25. <http://www.medicaldaily.com/adulthood-extended-age-25-child-psychologists-uk-257835>

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### Walnuts

Research found that daily intake of 56g of walnuts improves endothelial function in overweight adults with visceral adiposity. The addition of walnuts to the diet does not lead to weight gain. The primary outcome measure was the change in flow-mediated vasodilatation (FMD) of the brachial artery. Secondary measures included serum lipid panel, fasting glucose and insulin, Homeostasis Model Assessment–Insulin Resistance values, blood pressure, and anthropometric measures. FMD improved significantly from baseline when subjects consumed a walnut-enriched diet as compared with the control diet. Beneficial trends in systolic blood pressure reduction were seen, and maintenance of the baseline anthropometric values was also observed. Other measures were unaltered.

<http://www.alphagalileo.org/ViewItem.aspx?ItemId=134744&CultureCode=en>

### Men and Women

A recently published study strongly suggests men succumb to sexual temptations for example, cheating on a partner. Previous research has shown that men are more likely than women to pursue romantic partners that are "off limits." However, without Monica's temptation, could Bill have had oral sex with her? Without a female co-conspirator, a man cannot cheat on his female partner. Men and women do not differ in the extent to which they exerted self-control.

<http://esciencenews.com/articles/2013/09/22/stronger.sexual.impulses.may.explain.why.men.cheat.more.women.study.reveals>

In a study, men with type 1 diabetes appear to be better at blood sugar control than women, but there is no significant difference in blood sugar control between boys and girls. Further work is required to investigate explanations for this finding. One explanation could be that women tend to have lower

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haemoglobin levels than men which could explain the higher HbA1c levels.

<http://www.sciencedaily.com/releases/2013/09/130923200309.htm>

### Healthy Vegetarian Choices and Longevity

Telomeres are the protective caps on the ends of chromosomes that affect how quickly cells age. They are combinations of DNA and protein that protect the ends of chromosomes and help them remain stable. As they become shorter, and as their structural integrity weakens, the cells age and die quicker. In recent years, researchers have associated shorter telomere with a broad range of aging-related diseases, including many forms of cancer, stroke, vascular dementia, cardiovascular disease, obesity, osteoporosis and diabetes.

A study published online in The Lancet Oncology shows that changes in diet, exercise, stress management and social support may result in longer telomeres, the parts of chromosomes that affect aging. The subjects (vegetarians) embarked on lifestyle changes that included: a plant-based diet (high in fruits, vegetables and unrefined grains, and low in fat and refined carbohydrates); moderate exercise (walking 30 minutes a day, six days a week); stress reduction (gentle yoga-based stretching, breathing, meditation). They also participated in weekly group support. They were compared to the other 25 study participants (non-vegetarians) who were not asked to make major lifestyle changes. The vegetarian group that made the lifestyle changes experienced a "significant" increase in telomere length of approximately 10 percent. Further, the more people changed their behavior by adhering to the recommended lifestyle program, the more dramatic their improvements in telomere length, the scientists learned. By contrast, the non-vegetarian subjects in the control group who were not asked to alter their lifestyle (western rich animal-based diet and lifestyle) had measurably shorter telomeres -- nearly 3 percent shorter -- when the five-year study ended. So, the telomere in vegetarian group is about 13% longer (with longer life expectancy) than in the control group.

<http://www.sciencedaily.com/releases/2013/09/130916203946.htm>

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### Chronic Pain

Chronic pain affects nearly 100 million Americans and costs the United States up to \$635 billion per year to treat. According to the Institute of Medicine, an independent research organization, chronic pain affects a growing number of people. The U.S. government recently outlined steps to reduce the future burden of pain through broad-ranging efforts, including enhanced research. The structure of the brain may predict whether a person will suffer chronic low back pain, according to researchers who used brain scans. The results, published in the journal Pain, support the growing idea that the brain plays a critical role in chronic pain, a concept that may lead to changes in the way doctors treat patients.

<http://www.nih.gov/news/health/sep2013/ninds-17.htm>

### Sleep Apnea and Insomnia

Sleep apnea affects millions of American adults. The condition, which often goes undiagnosed, is marked by snoring and breathing interruptions during sleep. People with sleep apnea are at increased risk for heart problems and daytime accidents. Treatment for sleep apnea may do more than improve your sleep and health: It could help you look better, according to a new study. Improvements in the patients' faces were noted just a few months after they started using continuous positive airway pressure (CPAP), according to the study published in the Journal of Clinical Sleep Medicine.

<http://www.ibtimes.co.in/articles/506363/20130916/sleep-apnea-treatment-cpap-therapy-benefits.htm>

Brain scans of people who say they have insomnia have shown differences in brain function compared with people who get a full night's sleep. Researchers said the poor sleepers struggled to focus part of their brain in memory tests. Other experts said that the brain's wiring may actually be affecting perceptions of sleep quality. <http://www.bbc.co.uk/news/health-23897665>

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Scientists believe they have discovered a new reason why we need to sleep - it replenishes a type of brain cell. Sleep ramps up the production of cells that go on to make an insulating material known as myelin which protects our brain's circuitry. The findings, so far in mice, could lead to insights about sleep's role in brain repair and growth as well as the disease MS, says the Wisconsin team.

<http://www.bbc.co.uk/news/health-23932577>

Getting treatment for a common sleep problem may do more than help you sleep better – it may help you look better over the long term, too, according to new research. The findings aren't just about "looking sleepy" after a late night, or being bright-eyed after a good night's rest.

[http://www.eurekalert.org/pub\\_releases/2013-09/uomh-sbl091113.php](http://www.eurekalert.org/pub_releases/2013-09/uomh-sbl091113.php)

#### Depression

A recent study has found that people who sit for long hours throughout the day suffer from symptoms of depression. The experimenters kept a close watch on their physical activity levels as well as depressive symptoms of mid-aged women. It was found that the risk of depressive symptoms was 47 percent greater for women who sat for more than seven hours a day in compared to women who sat for four hours or less daily. It was also found that women who did not exercise at all were at a 99 percent greater risk for depression in contrast to women who exercised for at least half an hour on most days. Sitting in a chair for long hours is also said to make one more prone to health issues like diabetes and heart diseases. People having a job that involves a lot of sitting are advised to take a short recess every 20 to 30 minutes to relieve muscle tension, roam around a bit, take deep breaths etc. The findings are published in the September edition of the American Journal of Preventive Medicine.

<http://www.scienceworldreport.com/articles/9397/20130911/sitting-long-hours-leads-depression-middle-aged-women-study.htm>

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### Oxytocin, the Social Chemical

Scientists estimate that the advent of social group living in humans preceded the emergence of pair living by 35 million years. Oxytocin is known to be important in the creation and maintenance of strong bonds and attachments between people. A new study suggests that oxytocin's role in one-on-one bonding probably evolved from the existing, broader affinity for group living and it plays a larger role in social interactions than previously thought. The new study, published in Nature, pinpoints a unique way in which oxytocin alters activity in a part of the brain that is crucial to experiencing the pleasant sensation called "reward." <http://news.health.com/2013/09/11/love-hormone-may-affect-social-connections/>

However, in a previous study it was found that oxytocin affects men and women differently in social contexts: in men it improves the ability to identify competitive relationships whereas in women it facilitates the ability to identify kinship.

<http://www.sciencedaily.com/releases/2013/07/130731093257.htm>

### Alcohol Hangovers

Millions of Euros are wasted each year due to absence from work caused by hangovers. Also there is some evidence that hangovers, rather than being a natural curb on excessive drinking, may actually be a gateway into alcoholism. Many people are familiar with the uncomfortable morning-after symptoms of excessive drinking, commonly known as a hangover. While it is a common phenomenon, a study of hangovers across adulthood has found their severity depends on age.

<http://www.sciencedaily.com/releases/2013/09/130912203206.htm>

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#### Cilantro

Hints that a favorite ingredient in Mexican, Southeast Asian, Indian and other spicy cuisine may be an inexpensive new way of purifying drinking water. Cilantro, also known as coriander and Thai parsley, shows promise as a much-needed new "biosorbent" for removing lead and other potentially toxic heavy metals from contaminated water. Cilantro grows wild in vast amounts in countries that have problems with heavy-metal water pollution. It is readily available, inexpensive and shows promise in removing certain metals, such as lead, copper and mercury, that can be harmful to human health. Conventional methods for removing heavy metals from water such as treatment with activated carbon (used in the filters in home water purification pitchers) or more advanced technology like ion-exchange resins are very effective, but expensive. Cilantro's secret may lie in the structure of the outer walls of the microscopic cells that make up the plant. They have an architecture ideal for absorption of heavy metals. Other plants, including cilantro's cousin, parsley, have similar features and could, potentially, work as biosorbents. <http://www.sciencedaily.com/releases/2013/09/130912104814.htm>

#### Imagination

Scholars theorize that human imagination comes from a widespread neural network, the brain's "mental workspace," that consciously manipulates images, symbols, ideas and theories and gives humans the mental focus needed to solve complex problems and come up with new ideas. In a study, it was found that the network closely resembles the "mental workspace" that scholars have theorized and might be responsible for much of human conscious experience and for the flexible cognitive abilities that humans have evolved. The study, titled "Network structure and dynamics of the mental workspace," appeared in the Proceedings of the National Academy of Sciences. [http://www.eurekalert.org/pub\\_releases/2013-09/dc-drd091313.php](http://www.eurekalert.org/pub_releases/2013-09/dc-drd091313.php)

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### Anger Spreads like Virus

When old-time villagers in monster movies grab their pitchforks and torches and gather in the town square, it's almost never a spontaneous expression of joy. Nope, the emotion these townsfolk organically spread, all the way to that spooky castle at the edge of town, is anger. So it is with the Internet. The correlation of anger among users is significantly higher than that of joy, which indicates that angry emotion could spread more quickly and broadly in the network, while the correlation of sadness is surprisingly low and highly fluctuated. Users with larger number of friends possess more significant sentiment influence to their neighborhoods.

<http://www.redorbit.com/news/technology/1112949373/contagious-anger-in-social-media-091713/>

### Artificial Sweeteners

The results of a new study published in The Journal of Physiology imply that it is hard to fool the brain by providing it with 'energyless' sweet flavours. Our pleasure in consuming sweet solutions is driven to a great extent by the amount of energy it provides: greater reward in the brain is attributed to sugars compared to artificial sweeteners. Choosing diet drinks and artificial sweeteners as an alternative to high-calorie treats may actually increase your craving for sugar, a new study has found. The findings imply that it is hard to fool the brain by providing it with 'energy-less' sweet flavours. According to the data, when we apply substances that interfere with a critical step of the 'sugar-to-energy pathway', the interest of the animals in consuming artificial sweetener decreases significantly, along with important reductions in brain dopamine levels. This is verified by the fact that when hungry mice – who thus have low sugar levels – are given a choice between artificial sweeteners and sugars, they are more likely to completely switch their preferences towards sugars even if the artificial sweetener is much sweeter than the sugar solution. <http://www.sciencedaily.com/releases/2013/09/130922205933.htm>

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### Bacteria in Humans

The bacteria cells in our body outnumber human cells 10 to 1, she says, but because they are much smaller than human cells, they account for only about 1 to 2 percent of our body mass, though they do make up about half of our body's waste. The host of bacteria we carry around weren't well-cataloged until recently. In July 2011, at North Carolina State University, the Belly Button Biodiversity study found about 1,400 different strains of bacteria living in the navels of 95 participants. Of these, 662 strains were previously unrecognized.

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**Source: The primary sources cited above, New York Times (NYT), Washington Post (WP), Mercury News, Bayarea.com, Chicago Tribune, USA Today, Intellihealthnews, Deccan Chronicle (DC), the Hindu, Hindustan Times, Times of India, AP, Reuters, AFP, womenfitness.net, about.com etc.**

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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