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The Telangana Science Journal
Health and Nutrition

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

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Sleep and Obesity

Part of the blame for obesity lies with the simple matter of turning out the lights and rolling into bed, according to the results of a new study, published online in the American Journal of Health Promotion. During the week that the children increased their sleep, they reported consuming an average of 134 fewer calories per day, weighed a half pound less, and had lower fasting levels of leptin, a hunger-regulating hormone that is also highly correlated with the amount of adipose tissue, when compared to the week of decreased sleep.

http://www.eurekalert.org/pub_releases/2013-11/tu-kws103013.php

Prior research has shown not getting enough sleep can impact your weight, but new BYU research finds the consistency of your bedtime and wake time can also influence body fat.

Researchers studied more than 300 women from two major Western U.S. universities over the course of several weeks and found that those with the best sleeping habits had healthier weights.

The following are the main findings from the study:

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A consistent bedtime and, especially, a consistent wake time are related to lower body fat. For adults (>17), getting less than 6.5 or more than 8.5 hours of sleep per night is associated with higher body fat.

Quality of sleep is important for body composition. According to researchers, the most surprising finding from the study was the link between bed/wake time consistency and body weight. Study participants who went to bed and woke up at, or around the same time each day had lower body fat. Those with more than 90 minutes of variation in sleep and wake time during the week had higher body fat than those with less than 60 minutes of variation. Wake time was particularly linked to body fat: Those who woke up at the same time each morning had lower body fat.

Apparently, staying up late and even sleeping in may be doing more harm than good. This is because we have these internal clocks, and throwing them off by not allowing them to get into a pattern does have an impact on our physiology. Researchers related consistent sleep patterns to having good sleep hygiene. When sleep hygiene is altered, it can influence physical activity patterns, and affect some of the hormones related to food consumption contributing to excess body fat.

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Researchers also found there was a sweet spot for amount of sleep: Those adults who slept between 8 and 8.5 hours per night had the lowest body fat. Sleep quality also proved to have a strong relationship to body fat. Sleep quality is a measure of how effective sleep is, or how much time spent in bed is spent sleeping. Those who had better sleep quality had lower body fat. To improve sleep quality, researchers recommend exercising, keeping the temperature in the room cool, having a quiet room, having a dark room, and using beds for sleeping only.

<http://www.biospace.com/News/consistent-bed-time-and-wake-time-can-mean/315694>

Falling asleep in the glow of the TV or leaving a light on next to the bed can affect brain activity levels and lead to poor quality sleep, according a new study. The study showed that even a low light interferes with good sleep by inducing more light sleep, less deep sleep and more frequent micro-arousals during sleep. With the light on, sleepers spent more time in stage 1 sleep - the shallowest kind - and less time in stage 3 and 4 sleep (the stages important for memory). This is similar to what happens to people suffering from sleep apnea. According to results published in Sleep Medicine, nine out of the ten sleepers reported feeling like they got poorer quality sleep when the light was on. Additionally, researchers recorded more "micro-arousals" - periods when the brain appears to be near-awake for more than three seconds - when the light was on.

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Chronic poor quality of sleep leads to diminished mental and physical functions and overall health. <http://www.reuters.com/article/2013/11/14/us-sleep-light-idUSBR09A0006A20131114>

Coma

A patient in a seemingly vegetative state, unable to move or speak, showed signs of attentive awareness that had not been detected before, a new study reveals. This patient was able to focus on words signaled by the experimenters as auditory targets as successfully as healthy individuals. If this ability can be developed consistently in certain patients who are vegetative, it could open the door to specialized devices in the future and enable them to interact with the outside world. For the study, the researchers used electroencephalography (EEG) to measure the electrical activity over the scalp and found that one of the vegetative patients was able to filter out unimportant information and home in on relevant words they were being asked to pay attention to. Using brain imaging (fMRI), the scientists also discovered that this patient could follow simple commands to imagine playing tennis. They also found that three other minimally conscious patients reacted to novel but irrelevant words, but were unable to selectively pay attention to the target word. <http://www.sciencedaily.com/releases/2013/10/131031110558.htm>

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Tiger Moms and Helicopter Parents

"Helicopter parents" and "tiger moms," new research published in Social Psychological and Personality Science finds that parents who prioritize their children's well-being over their own are not only happier, but also derive more meaning in life from their child-rearing responsibilities. The results indicated that more child-centric parents had greater positive feelings, less negative feelings, and experienced more meaning in life during child-care activities. In addition, the well-being of more child-centric parents was not affected negatively throughout the rest of the day, suggesting that the child-centric approach to parenting does not hurt parental well-being when parents are not taking care of their children.

<http://medicalexpress.com/news/2013-10-child-happier-person.html>

Stress

Mothers who carry large amounts of stress, either from personal life experience or inherited through inter-generational stress may indeed pass this stress onto their own children. However, now scientists are arguing that the mechanisms by which this transference happens could be biological in nature. Previous studies have combed through the various psychological pathways for transferring stress across generations, largely finding that mothers who experienced mentally

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taxing events were more likely to produce certain hormones that affect the developing fetus - most often through the placenta. A new study suggests this stress inheritance may also take place through the germline, as indicated by a heightened expression of a stress biomarker in the mothers' and childrens' brains. <http://www.medicaldaily.com/mothers-stress-passed-child-biologically-sperms-egg-cells-may-transport-non-genetic-info-too-261925>

Bilingualism

Yet another study published found that dementia develops years later in bilingual people than in people who speak just one language, in the journal Neurology. However, it comes with an intriguing new detail: The finding held up even in illiterate people indicating that the possible effect is not due to formal education, instead, researchers say, switching from one language to another in the course of routine communication helps explain why bilingual people in the study developed dementia five years later than other people did. So, if you add benefits of formal education and study, and use more than two languages, you may keep the Alzheimer's away for a longer time. <http://www.usatoday.com/story/news/nation/2013/11/06/language-bilingual-dementia/3452549/>

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Nuts

In a large prospective study published online in the British Journal of Cancer, researchers looked at the association between nut consumption and risk of pancreatic cancer among 75,680 women in the Nurses' Health Study with no previous history of cancer. Consumption of nuts, including tree nuts (such as almonds, Brazil nuts, cashews, hazelnuts, macadamias, pecans, pine nuts, pistachios and walnuts), was inversely associated with risk of pancreatic cancer, independent of other potential risk factors for pancreatic cancer. Women who consumed a one-ounce serving of nuts two or more times per week had a significantly reduced risk of pancreatic cancer compared to those who largely abstained from nuts. According to the lead author, the risk reduction was independent of other risk factors (both established and suspected) such as age, height, obesity, physical activity, smoking, diabetes, and diet factors. Pancreatic cancer is the fourth most common cause for cancer-related mortality in the U.S., yet very few modifiable risk factors have been identified. According to the 2009 World Cancer Research Fund / American Institute for Cancer Research (WCRF/AICR) report, aside from cigarette smoking, body fatness was the only convincing modifiable risk factor for pancreatic cancer. While there may be concern that frequent nut consumption may result in weight gain and thereby increase the risk of developing pancreatic cancer, the opposite seems to be true. Apparently, women who consumed the most nuts, tended to weigh less. Moreover, in a

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recent analysis of these same women, higher nut consumption was associated with a slightly lower risk of weight gain and obesity. http://www.eurekalert.org/pub_releases/2013-11/mp-tnc110613.php

Chocolate

An article published recently in the journal *Nutrition*, shows that higher consumption of chocolate is associated with lower levels of total fat (fat deposited all over the body) and central fat (abdominal), independent of whether or not the individual participates in regular physical activity and maintains a healthy diet, among other factors. The researchers determined whether greater chocolate consumption was associated with higher body mass index and other indicators of total and central body fat in adolescents participating in the *HELENA (Healthy Lifestyle in Europe by Nutrition in Adolescence)* study. This project studies the eating habits and lifestyle choices of young people in 9 European countries. The study showed that a higher level of chocolate consumption was associated with lower levels of total and central fat when these were estimated through body mass index, body fat percentage, measured by both skinfolds and bioelectrical impedance analysis, and waist circumference. These results were independent of the

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participant's sex, age, sexual maturation, total energy intake, intake of saturated fats, fruit and vegetables, consumption of tea and coffee, and physical activity. However, it should be noted that candy contributes to obesity due to sugar in it, chocolate or no chocolate.

<http://medicalxpress.com/news/2013-11-chocolate-body-fat.html>

Coffee

Although many of us rely heavily on coffee to pull through the day without collapsing, a recent study has found that caffeine is much more effective during certain parts of the day. Researchers have found that the maximum effect of caffeine can be felt if consumed between 9.30 am and 11.30 am. The best time to drink a cup of strong coffee is when levels of the hormone cortisol are low in the body. Cortisol controls the body clock and promotes alertness.

<http://www.universityherald.com/articles/5427/20131107/drink-cup-strong-coffee-9-30am-11-30am-benefits.htm>

Food Processing Guidelines

Acrylamide in food is a concern because the National Toxicology Program (an interagency program that evaluates possible health risks associated with exposure to certain chemicals) characterizes the substance as "reasonably anticipated to be a human carcinogen." Acrylamide

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forms in foods from a chemical reaction between asparagine, an amino acid, and reducing sugars such as glucose and fructose. This reaction is part of the Maillard reaction, which leads to color, flavor, and aroma changes in cooked foods. Acrylamide formation usually occurs at elevated temperatures used when frying or baking (above 120 °C (248 °F)) and in low moisture conditions, although acrylamide has also been identified in some fruit and vegetable products heated at lower temperatures or higher moisture conditions. Also, acrylamide formation occurs primarily in plant-based foods, notably potato products such as French fries and potato chips; cereal-grain-based foods such as cookies, crackers, breakfast cereals, and toasted bread; and coffee. Acrylamide is also found in cigarette smoke and is produced industrially for use in products such as plastics, grouts, water treatment products, and cosmetics.

Since the discovery of acrylamide in food, the international research community has explored numerous strategies for reducing acrylamide in food products. Decreasing frying temperatures to no higher than 175 °C and targeting higher moisture endpoints may help reduce acrylamide, but it is important to determine if moisture endpoints provide acceptable product quality. Using lower temperatures during final cooking stages and using techniques like flash frying or vacuum frying may help reduce acrylamide.

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The Food and Drug Administration took the latest step to address the potential risk when it released draft guidelines for the food industry. For example, FDA is urging potato growers to favor low-sugar varieties that produce less acrylamide and urging processors to decrease frying temperatures, tweak ingredients and avoid certain storage practices. Even cutting thicker fries and chips can help, FDA says. Selecting potato flakes with lower levels of reducing sugars may help reduce acrylamide. Lower reducing sugar levels may be found by specifying maximum sugar levels, buying early in the processing season, or by mixing flakes from different sources. Flakes treated with acidulants, calcium, or asparaginase during flake production may also produce flake-based products with lower acrylamide. Partially substituting potato flakes with other ingredients may help reduce acrylamide in fabricated potato products.

<http://www.fda.gov/Food/FoodborneIllnessContaminants/ChemicalContaminants/ucm053569.htm>

<http://www.fda.gov/ForConsumers/ConsumerUpdates/ucm374855.htm>

<http://www.fda.gov/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/ChemicalContaminantsMetalsNaturalToxinsPesticides/ucm374524.htm>

Facial Recognition

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A new study recently published in Nature Communications has found that it takes longer to recognize a familiar face when seen in an unfamiliar setting, like seeing a work colleague when on holiday, is due in part to the processes that our brain performs when learning and recognizing faces. If participants had recently seen lots of unfamiliar faces, they were more likely to say that the face they were looking at was unfamiliar, even if they had seen the face several times before and had previously reported that they did recognize the face.

<http://medical.xpress.com/news/2013-11-context-key.html>

Oat Meal

Much of the strategy behind combating obesity boils down to healthy eating habits. Taking into account the primary role of subjective appetite sensations in said habits, a group of researchers recently compared the satiety impact of two popular breakfast choices: oatmeal and ready-to-eat breakfast cereal (RTEC). The oatmeal breakfast resulted in a greater increase in perceptions of fullness and a greater decrease in perceptions of hunger, desire to eat, and prospective intake in the 4-hour period postprandial when compared with the RTEC while ratings of satisfaction didn't differ significantly. These findings are consistent with physicochemical test results indicating that the β -glucan content of the oatmeal was more viscous due to its higher

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concentration and molecular weight, signaling a more satiating form of fiber.

<http://www.sciencedaily.com/releases/2013/11/131122132410.htm>

Beverages

According to a study published in Cancer Epidemiology, Biomarkers & Prevention, women who consumed sugar-sweetened beverages were more likely to develop endometrial cancer compared to women who did not drink sugar-sweetened beverages. Women who reported the highest intake of sugar-sweetened beverages had a 78 percent increased risk for estrogen-dependent type I endometrial cancer (the most common type of this disease). This association was found in a dose-dependent manner: the more sugar-sweetened beverages a woman drank, the higher her risk. This effect could potentially be due to the fact that, according to the results of other studies, increase in consumption of sugar-sweetened beverages parallels increase in obesity.

Obese women tend to have higher levels of estrogen and insulin, both of which are established risk factors of endometrial cancer, than women of normal weight.

<http://www.sciencedaily.com/releases/2013/11/131122132354.htm>

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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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