Latest Health News (Press Clippings Services of NDC)

Alcohol

Alcohol can help you solve riddles faster (New Kerala: 13.4.2012)

Strange but true... scientists say that drinking some beer before solving brain teasers can help you do better than those who attempt the riddles in a sober state.

Alcohol clouds analytical thinking or so it is thought, but frees stifled 'creative' thoughts to well up, allowing subjects to come up with more imaginative insights or solutions.

University of Illinois psychologists set 40 healthy young men a series of brain teasers. They were given three words, such as coin, quick and spoon, and coming up with a fourth word that links the three - in this case silver, the journal of Consciousness and Cognition reports.

Half the group drank the equivalent of two pints of beer before doing the tests, while the rest carried them out sober, according to The Telegraph.

The drinking group solved nearly 40 percent more problems than the others, and took an average of 12 seconds compared to the 15.5 seconds needed by sober subjects.

The researchers said: "The current research represents the first demonstration of alcohol's effect on creative problem solving."

Study author Jennifer Wiley said: "The bottom line is that we think being too focused can blind you to novel possibilities, and a broader, more flexible state of attention is needed for creative solutions to emerge." (IANS)

Childhood obesity

Childhood obesity genes identified (New Kerala: 13.4.20120

Scientists have identified at least two new gene variants that increase the chances of common childhood obesity.

The meta-analysis included 14 different research groups, including that from The University of Western Australia (UWA), encompassing 5,530 cases of childhood obesity and 8,300 control subjects of normal weight, all of European ancestry.

The team identified two novel loci (specific location of a gene), one near the OLFM4 gene on chromosome 13, the other within the HOXB5 gene on chromosome 17.

They also found a degree of evidence for two other gene variants. None of the genes were previously implicated in obesity, the journal Nature Genetics reports.

Scientific director of the study, Craig Pennell, associate professor at UWA, said: "Previous studies have focused on more extreme forms of obesity primarily connected with rare disease syndromes, while this study includes a broader range of children, according to a UWA statement.

"We have identified and characterised two new genetic variants that are associated with a predisposition to common childhood obesity," added Pennell.

Previous studies have identified gene variants contributing to obesity in adults and in children with extreme obesity but relatively little is known about genes implicated in regular childhood obesity.

"This work opens up new avenues to explore the genetics of childhood obesity," said Pennell. "A great deal of work remains, however. These findings may ultimately be useful in helping to design preventive interventions and treatments for children, based on their individual genomes." (IANS)

Obesity-high blood sugar

Obesity-high blood sugar combo creates pregnancy risks (New Kerala: 13.4.20120

Overweight women with moderately elevated blood sugar are at a higher pregnancy risk than their obese counterparts with normal blood sugar or those who have gestational diabetes but normal weight.

One of the adverse outcomes is having large babies, the result of fat accumulation. Large babies increase the risk of injury to the baby during vaginal delivery, increasing the likelihood of a Caesarean section.

A pregnant woman's higher blood sugar level and weight can also lead to higher insulin and lower blood sugar levels in a newborn. In turn, these effects may eventually trigger obesity and diabetes, perhaps as early as childhood, the journal Diabetes Care reports.

"We need to address the combination of overweight and blood sugar of these women as urgently as we do for women who are obese or have gestational diabetes," said principle investigator Boyd Metzger, professor of endocrinology at Northwestern University Feinberg School of Medicine.

The study, based on 23,316 women from nine countries, also found women who are both obese and have gestational diabetes are at a much higher risk of having an adverse pregnancy than women having only one of those conditions, according to a Northwestern statement.

The study found when the mothers are obese and have gestational diabetes, the babies weigh 340 gram more than babies of mothers with normal weight and blood sugar. (IANS)

Insulin pumps

Here come smart insulin pumps for diabetic kids (New Kerala: 13.4.2012)

As many as a million children suffer from Type I diabetes in India and painful for them are those insulin jabs. But smart insulin pumps are now changing things for these kids.

"Type 1 diabetes (commonly known as juvenile diabetes) is the most common form of diabetes among children. According to the Juvenile Diabetes Research Foundation (JDRF), in India, there are about 10 lakh children with Type I diabetes," Neeru Gera, consultant endocrinologist, Max Hospital, Saket here, told IANS.

"The first and foremost advantage of insulin pump therapy is that it could help children get relief from the daily pain of insulin shots," Gera added.

Diabetes is of different types. For instance, Type 2 is found in people who are above 40, while gestational diabetes occurs during pregnancy. Usually diabetic patients have to take insulin injections before a meal.

But an insulin pump brings more flexibility.

Costing between Rs.99,000 and Rs.350,000, the insulin pump comes in the shape of a mechanical device, a little larger than a pager, which can be attached to a belt or a pocket.

It delivers fast-acting insulin into the body via an infusion set - a thin plastic tube ending in a small, flexible plastic cannula (tube) or a very thin needle.

One has to insert the cannula beneath the skin at the infusion site, usually in the abdomen or upper buttocks and insulin is delivered through this infusion set. A patient can keep the infusion set in the same place for two to three days (sometimes more). It can then be moved to a new location.

"With insulin pump therapy, the concept of multiple daily injections hardly exists. The patient only needs to change his or her infusion set a maximum of 12 times per month," Shalini Jaggi, consultant diabetologist, Sri Balaji Action Medical Institute here, told IANS.

When it comes to Type 1 diabetes, children in the age group of 10-14 years are at a higher risk of developing it. Those aged between five and nine years have middle risk and kids of 0-4 years have a lower risk of developing diabetes.

Those suffering from the condition have to follow a strict lifestyle. Parents have to constantly keep a check on the children's diet and exercise.

Insulin pumps have flexible choices, says Anju Virmani, consultant endocrinologist, Max Hospital.

"Pumps give you greater control over insulin delivery, thereby giving you more control over the onset of insulin action. That means you can determine what and when you want to eat, when and for how long you play sports, and even whether or not to skip a snack or meal. In short, you control the insulin. It doesn't control you," Virmani said.

But there are certain precautions that need to be taken.

"An insulin pump is a mechanical device. Any malfunction of the device can have an adverse effect on the patient," said Jaggi.

"Besides, insulin pump therapy uses only faster-acting insulin. Therefore, any interruption in insulin delivery (due to infusion set clogs, leaks, loss of insulin potency, or pump malfunction) may result in hyperglycemia (high blood glucose) within two to four hours. Always carry an emergency kit to supply insulin in case you develop a problem with your pump."

Autism

New tool to diagnose autism within minutes (New Kerala: 13.4.2012)

Researchers are developing a new tool that will diagnose autism in young children within mere minutes instead of the hours that it currently takes.

Diagnosing autism is complex and subjective. Dennis Wall, associate professor of pathology and director of computational biology initiative, Harvard Medical School, is working on algorithms to detect autism rapidly and with high accuracy.

They are designed to work within a mobile architecture, combining a small set of questions and a short home video of the subject, to enable rapid online assessments, the journal Nature Translational Psychiatry reports.

This tool could reduce the time for autism diagnosis from hours to minutes and can be integrated with routine child screening practices to include more of the population at risk, according to a Harvard statement.

"We believe this approach will make it possible for more children to be accurately diagnosed during the early critical period when behavioural therapies are most effective," said Wall.

Autism is a developmental disorder that appears in the first three years of life, characterised by impaired social interaction and communication, and by restricted and repetitive behaviour.

Children suspected of autism typically take the Autism Diagnostic Interview-Revised, known as the ADI-R, a 93-question questionnaire, and/or the Autism Diagnostic Observation Schedule, known as the ADOS exam, which measures several behaviours.

Together these test can take up to three hours and must be administered by a trained clinician. Often, there is a delay of more than a year between initial warning signs and diagnosis because of the waiting times to see a clinical professional who can administer the tests and deliver the formal diagnosis, Wall said. (IANS)

Stress

Stress and Poor Coping Skills may lead to 'Pseudo-Seizures'(Med India: 13.4.2012)

A new study has revealed that a number of patients admitted for treatment of intractable seizures have stress-triggered symptoms rather than a true seizure disorder.

The researchers - a team of Johns Hopkins physicians and psychologists- based their claim on their clinical experience and observations.

These patients - returning war veterans, mothers in child-custody battles and over-extended professionals alike - have what doctors are calling psychogenic non-epileptic seizures (PNES).

Their display of uncontrollable movements, far-off stares or convulsions, Johns Hopkins researchers say, are not the result of the abnormal electrical discharges in the brain that characterize epilepsy, but instead appear to be stress-related behaviours that mimic and are misdiagnosed as the neurological disorder.

One potent clue, the researchers note, is that antiseizure medications fail to stop these patients' symptoms, suggesting nothing is physically wrong with their brains' electrical activity. The researchers also say the diagnoses appear to be on the rise, at least by what they have seen in recent months.

In the past, behaviours like PNES were called "hysteria."

Now they are often considered by psychiatrists as part of a "conversion" disorder, in which the patient unconsciously converts emotional dysfunction into physical symptoms.

In some cases, those afflicted have become paralysed or blind because of emotional trauma. People at risk for pseudo-seizures are typically highly suggestible, the Hopkins

scientists say, which is why physicians often have tried not to publicize or draw attention to the condition.

In recent months, headlines out of Western New York have described a group of more than a dozen female high school students who experienced uncontrollable tics and other movements, which many experts now believe are manifestations of a "contagious" psychiatric rather than neurological disorder.

In a new study, a team of neuropsychologists and neurologists at the Johns Hopkins University School of Medicine suggest that people with PNES don't necessarily experience more frequent or severe stressful events than people with epilepsy or neurologically healthy people.

However, they seem to lack effective coping mechanisms necessary to deal with those stresses and feel more distressed by them.

"These patients behave as if they have an organic brain disease, but they don't," said Jason Brandt, Ph.D., the study's senior investigator and a professor of psychiatry and behavioural sciences and neurology at the Johns Hopkins University School of Medicine.

"And it turns out that their life stresses weren't all that high, but they're very sensitive to stress and they don't deal with it well."

The Johns Hopkins researchers say they undertook the new study in an effort to learn why "psychogenic" symptoms so closely simulate a physical disorder and why some people are more susceptible to these behaviours than others.

Clearly, not every overwhelmed person develops seizure symptoms, they note, nor is it known how many people experience pseudo-seizures.

For the study the researchers evaluated 40 patients with PNES, 20 people with epilepsy and 40 healthy control volunteers, all of whom were asked to report the frequency of various stressful life events (both positive and negative) over the previous five years.

The research subjects then appraised the distress these events induced. Each group reported roughly the same number of stressful events, but the PNES group reported much higher distress levels than the other two groups.

The researchers found that the PNES group was less likely to plan a course of action to counter stressful life events. Those who used denial - the failure to acknowledge stressors - experienced greater distress than those who did not, illustrating the ineffectiveness of denial as a way of warding off anxiety, Brandt said.

Along with seizure symptoms, patients with PNES often have other problematic behaviours and unstable relationships. Many remain occupationally disabled and have

high health care expenditures, even years after the non-epileptic nature of their events is identified, the authors reported.

The costs of believing you have epilepsy when you don't are high, Brandt noted.

The study has been published online in the journal Seizure.

Antioxidant

Antioxidant Could Disrupt Alzheimer's disease Progression (Med India: 13.4.2012)
13.4.2012)

A recent research highlights the role of metal ions as key modulators for the toxic interactions of risk factors for Alzheimer's disease.

In the current study a group of investigators from led by Dr. Othman Ghribi, PhD, Associate Professor,Department of Pharmacology, Physiology, and Therapeutics, University of North Dakota School of Medicine and Health Sciences, rabbits were fed a high-cholesterol diet which caused them to accumulate plaques of a small protein called beta-amyloid.

These plaques are toxic to neurons and central to the development of Alzheimer's disease.

The rabbits also developed changes in tau protein, which is part of the skeleton of neurons. When this protein becomes heavily phosphorylated, the ability of neurons to conduct electrical signals is disrupted.

Following treatment with a drug called deferiprone (an iron chelator), the iron level in the rabbits' blood plasma was reduced and the levels of both beta-amyloid and phosphorylated tau in the brain were returned to normal levels.

Another degenerative process in AD involves the production of reactive oxygen species (ROS) that can damage neurons in the brain. Deferiprone is also thought to suppress this reactive oxygen damage caused by free iron in the bloodstream, however in this study there was no difference in reactive oxygen species in the treated group.

It appears that iron in the AD brain is located in the wrong places - in particular it accumulates to very high levels in the cores of beta-amyloid plaques and is very reactive in this setting.

"Our data show that treatment with the iron chelator deferiprone opposes several pathological events induced by a cholesterol-enriched diet...Deferiprone reduced the generation of beta-amyloid and lowered levels of tau phosphorylation," said Dr. Ghribi.

While there was no effect on ROS levels, he comments that "It is possible that a higher dose of deferiprone, or combination therapy of deferiprone together with an antioxidant to prevent ROS generation would more-fully protect against the deleterious effects of cholesterol-enriched diet that are relevant to AD pathology."

Drugs targeting these metal interactions hold promise as disease-modifying agents," noted expert on metals metabolism research on AD Ashley Bush, MD, PhD, Mental Health Research Institute, Melbourne, Australia, added.

The study has been published in the Journal of Alzheimers Disease.

Sleep

Erratic Sleep Patterns Increase Risk of Obesity and Diabetes (Med India: 13.4.2012)

A new study conducted by researchers in Boston has revealed that the risk of diabetes and obesity is higher among those who have less than optimum sleep or erratic sleep.

The study was conducted by researchers from the Brigham and Women's Hospital and involved 21 healthy volunteers over a period of six weeks. The participants managed to get an optimal 10 hours of sleep at the start and end of the study but for three weeks, they were made to sleep at different times of the day and for just five and a half hours.

The researchers found that erratic sleeping pattern and less hours of sleep had a negative effect on the metabolic rate, increasing the blood sugar levels due to poor insulin secretion by the pancreas.

Writing in the report, published in the journal Science Translational Medicine, the researchers said, “We think these results support the findings from studies showing that, in people with a pre-diabetic condition, shift workers who stay awake at night are much more likely to progress to full-on diabetes than day workers.”

Physical Activity

Lack of Physical Activity Predisposes Women to Diabetes Risk (Med India: 13.4.2012)

Women are more likely to suffer from diabetes and depression than men as they are getting half the amount of exercise compared to their male counterparts.

Researchers from Oregon State University were looking into the link between physical activity, depression and metabolic syndrome and recruited more than 1,000 men and women for the study.

However they found that there was a marked difference between the amounts of exercise between the genders with women getting just 18 minutes of exercise a day compared to 30 minutes among men.

The researchers concluded in their report, published in the journal Preventive Medicine, that women were more likely to develop “metabolic syndrome” which is characterized by high blood pressure, high cholesterol and excess weight in the middle portion of the body.

“The results indicate that regular physical activity participation was associated with positive health outcomes for both men and women; however, there was a greater strength of association for women”, lead researcher Paul Loprinzi said.

Genetic Disorder

Rare Genetic Disorder That Turns Organs into Crystals (Med India: 13.4.2012)

A distressed couple in Leeds has revealed that both of their children are suffering from a rare genetic disorder that slowly turns their organs into crystals.

Jessica Kemp revealed that her daughters, Emily, 3, and Poppy-Mae, 2, have been diagnosed with cystinosis, a rare genetic disorder that affects just one in 3.5 million.

Cystinosis is an incurable condition with just 2,000 patients in the world and as it is a genetic disease, there is a one in four chance that Ms Kemp's children may suffer from the disease.

Ms Kemp said that when Emily was diagnosed with the disease, she was pregnant with Poppy-Mae and knew that she too would be suffering from the condition. "I already knew in my heart that she had it. I was devastated when the doctors confirmed our worst fears - both our little girls had cystinosis", she said.

Genes

How Genes are controlled - New Perspective (Med India: 13.4.2012)

Scientists have developed a new way of looking at how genes are controlled. Anyone who's tried a weekend home improvement project knows that to do a job right, you've got to have the right tools. For cells, these "tools" are proteins encoded by genes. The right genes for the job are turned on only in the specific cells where they are needed. And every cell in your body has a specific job to do. Cells in your pancreas have to produce insulin, while cells in the retina of your eye must be able to sense light and color. Like using the wrong tool for the job, if the wrong genes are turned on in a cell, it can cause a real mess. Worse, in some cases it can cause serious disease like cancer.

Scientists have known this for decades. They've also known that there are specific proteins called "transcription factors" that control which genes are turned on or off in cells by binding to nearby DNA. Transcription factors were thought to act like a switch; they are either "on" (bound to DNA) or "off" (not bound).

A UNC-led team of scientists has now shown that transcription factors don't act like an 'on-off' switch, but instead can exhibit much more complex binding behavior.

"This is a new way of looking at how genes are controlled," says Jason Lieb, PhD, study senior author. "For a while now there have been molecular maps that show the location of where the proteins are bound to DNA – like a roadmap. For the first time, we are able to show the molecular equivalent of a real-time traffic report." Their study appears in the April 12, 2012 issue of the journal Nature. Lieb is a professor of biology and a member of UNC Lineberger Comprehensive Cancer Center.

Working in yeast, the UNC team learned that the transcription factors' binding process is dynamic and involves more than just being bound or unbound. In addition to a stable binding state (on or off), the team demonstrates a state that they call "treadmilling," where no forward transcription process is occurring. Within this process, they hypothesize the existence of a molecular "clutch" that converts treadmilling to a stable bound state, moving the transcription process forward to completion to turn the gene on.

Lieb explains, "This discovery is exciting because we developed a new way to measure and calculate how long a protein is associated with all of the different genes it regulates. This is important because it represents a new step in the process of how genes are regulated. And with every new step, there are opportunities for new mechanisms of regulation." Lieb is director of the Carolina Center for Genome Sciences.

He adds, "We found that proteins that bind in the stable state are associated with high levels of gene transcription. We think that if we can regulate the transition between treadmilling and stable binding, we can regulate the outcome in terms of gene expression. Ultimately, this type of regulation could be important for genetic medicine – a new way to regulate the 'switches' that turn gene expression associated with disease on or off."

The team set up a controlled competition between two copies of the same transcription factor, each with a unique molecular tag. They let one of the proteins bind to all of its gene targets, then introduced the second copy. Next the team measured how long it took the competitor transcription factor to replace the resident protein and used this data to calculate the residence time at each location in the genome. Colin Lickwar, MS, first author of the paper, says, "We didn't know if the residence time was important, but we found that the residence time was a much better indicator of whether a gene was turned on or off than previous measures of binding."

Anthony Carter, PhD, who oversees gene regulation grants at the National Institutes of Health's National Institute of General Medical Sciences, explains, "By taking an interdisciplinary approach that incorporates the use of mathematical modeling tools, Dr. Lieb has shed new light on a fundamental cellular process, the ability to quickly shift between active and inactive states of gene expression. The findings may offer new insights on how cells respond to developmental cues and how they adapt to changing environmental conditions." The National Institute of General Medical Sciences partially supported the work.

Remedies

Scant Evidence That Insect Bite Remedies Work (Medical News Today: 13.4.2012)

A UK review in the April Drug and Therapeutics Bulletin (DTB) says there is scant evidence that over-the-counter remedies for simple insect bites work, suggesting that in most cases, no treatment at all is enough.

The DTB concludes:

"There is little evidence for the efficacy of treatments for simple insect bites. The symptoms are often self limiting and in many cases, no treatment may be needed."

Most of the insect bites inflicted on people in the UK are from midges, mosquitoes, flies, fleas and bedbugs, looking for a blood meal.

When they bite, these insects inject saliva into the wound, causing a reaction, such as itching and inflammation.

Some bites can result in infection, an eczema flare-up, or anaphylactic shock. Clearly these reactions warrant appropriate treatment, says DTB, but that is not what their review is about: their beef is with the over-the-counter medications used to treat the vast majority of milder reactions: the itching, swelling, pain, and secondary problems that come from scratching.

For instance, steroid creams have been shown to help people with eczema, but there is no evidence they are effective for the sort of itching and inflammation you get from an insect bite, says DTB.

Also, there is no evidence that steroid tablets work for severe localized and systemic reactions to insect bites, despite the fact they are recommended for this.

DTB urges people to use steroid creams very sparingly and never apply them to the face or broken skin.

Another remedy they raise doubts about is the widely recommended antihistamine tablet, used for pacifying the itching that accompanies insect bites. But according to DTB, there is little evidence to support this either.

DTB says they could find no hard evidence on the effectiveness of Crotramiton against itching. They cite a note in the British National Formulary, the UK expert's drug bible, that says the drug is of "uncertain value".

There is little evidence that antiseptics and astringents relieve itching or burning, although there is some evidence that dilute ammonium solution (counter-irritant) helps, says DTB.

As for creams that contain painkillers or anaesthetics like lidocaine, benzocaine, sometimes with antihistamines and antiseptics, DTB says they are "marginally effective and occasionally cause sensitisation".

DTB suggests that applying a cloth soaked in cold water to the wound is often the most effective way to treat a simple insect bite.

The review does not include treatments for bites from ticks, mites and lice.

DTB is published by BMJ Publishing Group Ltd. It is not a peer-reviewed journal; its articles are produced by editors in consultation with experts.

Mental Illness

Mental Illness Linked To Chronic Physical Illness Risk (New Kerala: 13.4.2012)

A study by the Substance Abuse and Mental Health Services Administration (SAMHSA) reveals that individuals aged 18 and older who had any mental illness, major depressive episodes or serious mental illness in the past year, are more likely to develop diabetes, high blood pressure, asthma, cardiovascular disease, or have a stroke, than those not experiencing mental illness.

For example, 18.3% of adults who have not experienced any mental illness in the past year had high blood pressure, compared to 21.9% of those experiencing any mental illness. In addition, 10.6% of adults without mental illness in the past year also had asthma, compared to 15.7% of adults who had any mental illness.

In addition, the researchers found that individuals who suffered from a serious mental illness (i.e. a mental illness resulting in severe functional impairment substantially interfering with one or more major life activities) in the past year were more likely to develop cardiovascular disease, high blood pressure, asthma, diabetes, and stroke than adults without serious mental illnesses.

Individuals who had major depressive episodes lasting 2+ weeks were more likely (24.1%) to develop high blood pressure than adults without experiencing major depressive episodes in the past year (19.8%), 8.9% to develop diabetes vs. 7.1%, 6.5% to develop cardiovascular disease vs. 4.6%, 17.0% asthma vs. 11.4%, and 2.5% stoke vs. 1.1%.

Furthermore, the researchers found that individual who experienced serious mental illness in the past year were more likely to to use emergency departments (47.6%) than adults without serious mental illness (30.5%). In addition, adults who experienced serious mental illness were more likely to have been hospitalized (20.4%) than those without serious mental illness (11.6%). SAMHSA Administrator Pamela S. Hyde, explained:

"Behavioral health is essential to health. This is a key SAMHSA message and is underscored by this data. Promoting health and wellness for individuals, families and communities means treating behavioral health needs with the same commitment and vigor as any other physical health condition. Communities, families, and individuals cannot achieve health without addressing behavioral health."

The report entitled, Physical Health Conditions among Adults with Mental Illnesses is based on SAMHSA's 2008-2009 National Survey on Drug Use and Health (NSDUH) data. NSDUH is an annual nationally representative survey of the U.S. civilian, non-institutionalized population aged 12 or older.

Lung Cancer

Lung Cancer Screening Saves Lives and Is Cost-Effective (Medical News Today: 13.4.2012)

A study published in the April issue of Health Affairs reveals that thousands of lives could be saved at a fairly low cost if commercial insurers routinely covered lung cancer screening.

In the United States, lung cancer is the leading cause of cancer deaths each year - killing over 150,000 individuals. However, the majority of insurance companies do not provide coverage for lung cancer screening for people at high-risk, despite the fact that these tests can detect early stage tumors.

Lead author of the study, Bruce Pyenson, an actuary and principal at the New York office of Milliman, a consulting and actuarial firm, explained:

"These results demonstrate the cost efficiency of offering this benefit to people who are at high risk of lung cancer.

The evidence of the value of advanced screening technology for lung cancer has accumulated to the point where we can show very strong cost-effectiveness for the commercial population. We can also jump the needle on cancer mortality for the first time in years, and do so in a cost-effective manner."

The researchers conducted the study in order to examine the costs and benefits of providing lung cancer screening through low-dose computed tomography (CT) to individuals who smoke, and long-term former smokers, aged between 50 to 64 years old. These individuals are considered to be at high risk of developing lung cancer.

Until now, there has been insufficient or conflicting evidence regarding the cost-benefit front and as a result the majority of private insurers do not cover lung cancer screening.

The team modeled insurer costs on the assumption that approximately 18 million individuals are at high-risk and about half of these people would undergo screening if it were a covered benefit. For instance, managed care reimbursement for a spiral CT can be

as low as $180. Using this figure, the team discovered that lung cancer screening would cost insurance companies around $247 per member tested each year.

In addition, when the team spread the total cost of lung cancer screening over the commercially insured population, they found that the cost was under $1 per insured member per month.

Results from the study indicate that if lung cancer screening was covered by insurers, it would save the lives of 130,000 individuals under the age of 65 during a 15 year period. Furthermore, the cost per life-year saved would be lower than breast or cervical cancer screening and similar to the cost per life-year saved of screening for colorectal cancer.

Pyenson said:

"This screening process offers a good value for the money and it saves lives. Late stage lung cancer is deadly, but if treated at early stage, survival is very good - that's what makes early detection so promising."

For instance, in 2011, results from a large, randomized controlled trial were published by the National Cancer Institute demonstrating that screening with CT scans can reduce the risk of lung cancer mortality. Over the last 15 years, CT technology has quickly evolved and can now identify small, suspicious nodules and also be used to determine growth patterns that indicate likely malignancies.

The researchers note study limitations, for instance, the benefits of screening could be lower, and the cost more expensive, if the tests are not performed according to the best practice guidelines for follow-up and price.

The team highlights the importance of efficient implementation of lung cancer screening including:
insurer's selection of high-quality providers

rigorous tracking of outcomes

use of best practices for managing clinical aspects of screening, especially is lesions are detected.
Pyenson explained:

"Rolling out lung cancer screening with embedded continuous quality improvement can prove how care breakthroughs and advanced technology do not have to feed cost escalation."

Colon Cancer

Breakthrough Discovery Unveils Master Switches in Colon Cancer (Science daily: 13.4.2012)

A team of researchers at Case Western Reserve University School of Medicine have identified a new mechanism by which colon cancer develops. By focusing on segments of DNA located between genes, or so-called "junk DNA," the team has discovered a set of master switches, i.e., gene enhancer elements, that turn "on and off" key genes whose altered expression is defining for colon cancers. They have coined the term Variant Enhancer Loci or "VELs," to describe these master switches.

Importantly, VELs are not mutations in the actual DNA sequence, but rather are changes in proteins that bind to DNA, a type of alteration known as "epigenetic" or "epimutations." This is a critical finding because such epimutations are potentially reversible.

Over the course of three years, the team mapped the locations of hundreds of thousands of gene enhancer elements in DNA from normal and cancerous colon tissues, pinpointing key target VELs that differed between the two types.

"What is particularly interesting is that VELs define a 'molecular signature' of colon cancer. Meaning, they are consistently found across multiple independent colon tumor samples, despite the fact that the tumors arose in different individuals and are at different stages of the disease," says Peter Scacheri, PhD, senior author of the study and assistant professor, Genetics and Genome Sciences, School of Medicine, and member, Case Comprehensive Cancer Center at Case Western Reserve University. "The set of common VELs govern a distinct set of genes that go awry in colon cancer."

"The VELs signature is notable because it cuts through the complexity of the many genes that are changed in colon cancer, to identify genes that are direct targets of alterations on chromosomes," says Sanford Markowitz, MD, PhD, Ingalls Professor of Cancer Genetics in the Division of Hematology-Oncology at the School of Medicine, member, Case Comprehensive Cancer Center, and oncologist at University Hospitals Seidman Cancer Center, whose team collaborated on the study. "The key next step will be to determine whether we can use VELs for 'personalized medicine,' to molecularly define distinct groups of colon cancers that differ in their clinical behavior, and to enable selection of specific drugs that will best treat a given colon tumor."

In addition to finding that VELs are a "signature" of colon cancer, the team showed that genetic variants which predispose individuals to colon cancer are located within VELs. This suggests that individual differences within VELs may play significant roles in determining different individuals' susceptibility to colon cancer.

"Epigenetics has transformed the way we think about genomes. The genetic code isn't just a series of As, Ts, Gs, and Cs strung together. Epigenetic 'marks' on DNA tell genes when, where, and how much to turn on or off to keep cells healthy," says Batool Akhtar-Zaidi, PhD candidate in Dr. Scacheri's lab and lead author of the study. "When this epigenetic machinery is disrupted, as we see with VEL events, this can tip the balance to cancer."

This research was supported by the National Cancer Institute, as well as the Case Comprehensive Cancer Center.

Cells

How Cells Distinguish Between Disease-Causing and Innocuous Invaders (Science daily: 13.4.2012)

The specific mechanisms by which humans and other animals are able to discriminate between disease-causing microbes and innocuous ones in order to rapidly respond to infections have long been a mystery to scientists. But a study conducted on roundworms by biologists at UC San Diego has uncovered some important clues to finally answering that question.

In a paper published in this week's early online issue of the journal Cell Host & Microbe, the researchers discovered that intestinal cells in the roundworm C. elegans, which are similar in structure to those in humans, internalize bacterial toxins that inactivate several host processes. This then triggers an immune response, which results in the body mounting an immediate attack against the disease-causing microbes.

"The human intestine is teeming with trillions of bacteria, most of which are innocuous, or even beneficial," said Emily Troemel, an assistant professor of biology at UC San Diego who headed the study. "However, sometimes microbes cause disease, such as occurs in food poisoning."

The UC San Diego study and two others published this week in the journals Cell and Cell Host & Microbe by research teams headed by Frederick Ausubel and Gary Ruvkun at the Massachusetts General Hospital and the Harvard Medical School, show that the way animal cells detect an attack by poisons or disease-causing bacteria is by monitoring the function of their own cells. If those cells detect a deficit in functions, the scientists

discovered, they then trigger a variety of antibacterial or antitoxin responses against the invaders.

The roundworms proved to be the ideal laboratory model for these studies. Not only do they have intestinal cells that are similar in structure to human intestinal cells, but they are transparent and easy to maintain and study in lab.

"C. elegans provides a wonderful system in which to study questions of how humans and other animals defend themselves against attacks from disease-causing organisms," said Troemel. "It lacks an adaptive immune system and, instead, relies solely on the evolutionarily ancient innate immune system to fight off attacks. Our findings in these roundworms may have uncovered a new 'pathogen-specific' branch of the innate immune system, which could function in humans as well."

Troemel's team of researchers -- who included Tiffany Dunbar, Zhi Yan, Keir Balla and Margery Smelkinson -- found in their experiments that a particular genetic system -- the "ZIP-2 surveillance pathway" -- was used by the roundworm in detecting an infection by the disease-causing bacterium Pseudomonas aeruginosa. The biologists also found that a specific toxin in the bacterium -- "Exotoxin A" -- blocks protein synthesis in the worm's intestine.

"Surprisingly, this block leads to increased protein levels of the ZIP-2 transcription factor to ultimately induce expression of defense genes," the scientists conclude in their paper. "Thus, a common form of pathogen attack acts to switch on host defense, allowing discrimination of pathogens from innocuous microbes."

"In addition to P. aeruginosa Exotoxin A," said Troemel, "there are several other bacterial toxins known to block protein synthesis, such as Diphtheria toxin, Ricin toxin and Shiga toxin. These toxins cause substantial impact on public health. For example, a recent epidemic outbreak of Shiga-toxin producing E. coli caused over 3000 cases of food poisoning in Germany leading to 39 deaths. Like Exotoxin A, these toxins can be internalized into the host cell to block protein synthesis. Perhaps the human intestine also monitors disruption of host protein synthesis to detect food poisoning, and induce a response similar to what is found in the C. elegans intestine."

Troemel noted that it makes sense why animals have evolved systems that respond to core cellular dysfunction, rather than directly to specific toxins.

"We live in an environment filled with a wide variety of disease-causing organisms that can attack us using toxins," she said. "While these toxins are diverse in structure, the manner by which they disrupt our cellular machinery can be very similar. Directly monitoring the functioning of our cellular machinery may provide the optimal system for early detection and response to unknown toxins or pathogens."

The UC San Diego study was funded by the NIAID, Moores Cancer Center, Searle Scholars Program, Ray Thomas Edwards Foundation and David & Lucille Packard Foundation.

Children

Children: Better Protection from Influenza with Improved Vaccine (Science daily: 13.4.2012)

An intranasal vaccine that includes four weakened strains of influenza could do a better job in protecting children from the flu than current vaccines, Saint Louis University research shows.

Before each influenza season, scientists predict which strains of flu will be circulating and make a trivalent vaccine that includes three strains of influenza -- two of influenza A and one of influenza B.

The ability to add another strain of influenza B without compromising the vaccine's ability to protect against the other three strains will allow scientists make a better vaccine, said Robert Belshe, M.D., professor of infectious diseases at Saint Louis University School of Medicine and the corresponding author of the research article.

"The bottom line is adding another strain to make a quadrivalent vaccine improves our ability to protect against flu and doesn't reduce the body's immune response to the other strains," said Belshe, who also directs Saint Louis University's Center for Vaccine Development.

"It should bring us better protection because there's less guess work than in the standard trivalent vaccine."

Children are more susceptible than adults to influenza from one of the B strains, which change less often than A strain viruses. Some winters, influenza B viruses -- Victoria or Yamagata -- cause most of the flu in children and significant infection in adults, Belshe said.

Preventing flu in children is key to protecting the entire population. "We think the most important way for flu to spread is through school-aged children," Belshe said.

In the 1980s, influenza B split into the two circulating lineages of virus, which have evolved into viruses that are quite different. Some years both B viruses or the B strain

that doesn't match the vaccine circulate, which means the vaccine doesn't protect people from getting the flu.

"There are these two very different strains of influenza B that don't cross protect. Vaccinating against one strain of influenza B does little to protect against the other," Belshe said.

"It has not been possible to predict which strain has circulated. In the last 10 years, we predicted right five times. So you can flip a coin and do as well."

Previously, manufacturers had not had the capacity to produce a vaccine that protects against four strains of flu, but that is no longer the case, Belshe said.

The researchers tested versions of the FluMist vaccine, which is sprayed in the nose and contains live flu viruses that have been attenuated or weakened so they don't cause infection. The intranasal vaccine is made by MedImmune.

The nasal spray vaccine was tested in about 2,300 children between 2 and 19 years of age. The children were randomized to receive one of three vaccines: a vaccine containing four strains of influenza -- two of influenza A and two of influenza B, or one of two vaccines that contained both influenza A strains and one of each of the influenza B strains. Researchers looked at the safety and antibody response to both influenza A and B viruses in children of different age groups who were vaccinated.

Those children who receive vaccine containing four strains of flu had as robust of an immune response as those who received the vaccine that contained three strains. In addition, Belshe noted no clinically significant difference the safety of the vaccines, which were well tolerated.

"We saw stuffy noses, which we know is associated with FluMist, and an occasional low grade fever, which is similar to other childhood vaccines," Belshe said.

On Feb. 28, the U.S. Food and Drug Administration approved MedImmune's quadrivalent flu vaccine for use in people between the ages of 2 and 49. The vaccine could be ready for use during the 2013-2014 influenza season, pending a recommendation from the Advisory Committee on Immunization Practices, a group that advises the Centers for Disease Control and Prevention about vaccination issues.

An injected flu vaccine designed to protect against four strains of flu -- instead of the current three -- also is in the works, Belshe said.

Findings were published electronically ahead of print in the Pediatric Infectious Disease Journal. Belshe has been a member of a speaker's bureau and received research grants and consulting fees from MedImmune, which sponsored the study.

Asthma

Asthma: A Vaccination That Works Using Intramuscular Injection (Science daily: 13.4.2012)

Asthma is a chronic inflammatory and respiratory disease caused by an abnormal reactivity to allergens in the environment. Of the several avenues of exploration that are currently being developed, vaccination appears to be the most promising approach. In a publication soon to appear in the review Human Gene Therapy, the research scientists at Inserm and CNRS (Institut du thorax, CNRS/Inserm/University of Nantes) reveal an innovative vaccine against one of the allergens most frequently encountered in asthma patients.

After vaccine was directly injected into the muscle of an asthmatic mouse, a nanovector significantly reduced both the hypersensitivity to the allergen and the associated inflammatory response.

Allergic asthma is a chronic respiratory disease that affects 300 million people throughout the world. The number of people suffering from asthma has doubled over the last ten years and almost 250, 000 people die prematurely from this problem each year. In most cases, asthma is caused by an abnormal reaction to substances in the environment known as allergens. From a physiological point of view, this hypersensitivity results in serious inflammation of the bronchial tubes and the bronchioles in sensitive persons. This alters their ability to breathe correctly.

Current treatment consists in administering corticoids that treat the symptoms and temporarily relieve the disorder, but without curing it. An alternative, long-lasting treatment for allergic asthma is based on a specific immunotherapeutic protocol commonly known as desensitization. Repeated, increased doses of the allergen are administered in order to decrease the hypersensitivity and reduce the symptoms in the event of subsequent exposure. However, the efficiency of this protocol is limited and varies greatly from one patient to another.

Then the research scientists came up with the idea of a vaccination technique using the DNA of the allergenic substance. Rather than administering repeated doses of allergen extract in order to reduce sensitivity, we worked on specific DNA sequences of the allergen responsible for the allergy. "Several studies demonstrated the therapeutic potential of this strategy, but we still had to find techniques that were reliable in human

beings", explains Bruno Pitard, Director of the Biotherapy Innovations team at the Institut du thorax (CNRS/Inserm/University of Nantes). Using these techniques on human subjects meant that the treatment had to be efficient when only a small dose of DNA was injected.

The researchers first tried proving the efficiency of this DNA-based vaccination against the specific allergen Derf1, using a relevant animal model developed by the Bronchial and Allergic Pathologies team led by Antoine Magnan. In Europe, Dermatophagoides farinae 1 (Derf1) is a very common allergen carried by the dust mite Dermatophagoides farinae. More than half of patients presenting allergies to dust mites produce specific IgE type antibodies (Derf1) against this substance that are characteristic of asthma.

In practice, the researchers associated useful genetic sequences of the allergen Derf1 with a nanovector consisting of a synthetic polymer. This DNA sequence, transported by a sort of "molecular taxi" into the muscle cells that ensure protein synthesis of the allergen, modulated the allergic response in asthmatic animals.

The vaccine developed in a healthy mouse model was then optimized in a model composed of asthmatic mice. In the asthmatic mice, the vaccine triggers the production of specific anti Derf1 antibodies and a specific cellular response to Derf1, so that the immune system reacts with a protective non-allergizing response when the body comes into contact with the allergen. Two injections were administered at 3 weekly intervals. They significantly reduced the hypersensitivity of the airways and the levels of inflammatory cytokines, that were found in the lungs of asthmatic mice that had not been vaccinated.

These new results validate the whole potential for the use of this new nanovector in DNA vaccination. It is currently undergoing regulatory pre-clinical development with a view to future clinical trials in humans.

Immune system

New therapy uses immune system to fight cancer (World Newspapers Today: 13.4.20120

Make way for a new weapon in the arsenal of cancer treatments — dendritic cell therapy (DCT). Doctors in major Indian centres, like Mumbai, Delhi, Chennai, Bangalore, Pune and Hyderabad, have been carrying out medical trials of this new treatment for a year now and the results have been very encouraging.

The therapy works on the principle that the immune system of a cancer patient is extremely important in battling the disease. The process involves the drawing of blood

into a cell separator, which filters out immunologically active mono-nuclear or dendritic cells.

About 120ml of these dendritic cells are required. They are then treated with various agents, including a portion of the cancerous tumour in an incubator to make a vaccine that is injected into the patient's body once in a couple of weeks.

"So, what we are doing is essentially using the cells of the body's immune system to fight the cancerous cells by making the immunologically active cells stronger. These cells present the malignant cancerous cells to the body's immune system for clearing. They act as an interface between the body's immune system and the tumour," says Dr Ashok Vaid, senior oncologist with Medanta Hospital in Gurgaon.

This dendritic cell vaccine that is created externally in the laboratory can be used alongside chemotherapy, to help boost its effectiveness, as well as on its own, according to Dr Sameer Kaul, head of surgical oncology at Indraprastha Apollo Hospital at Delhi .
"I've treated about 19-20 patients using this therapy and I've had a success rate of over 50%. I've used DTC on its own and in conjunction with chemotherapy. The results have been very positive."

Doctors say the benefits of this therapy are not only restricted to prostate cancer. "I've used DCT to treat ovarian cancer, prostate cancer, malignant brain tumours as well as some non-cancerous conditions like pulmonary fibrosis. For brain cancer, it is said to improve the survival rates by five times," says Dr Purvish Parekh, an oncologist and haematologist at Mumbai.

The doctorsunderstand the necessity of conducting proper trials before the treatment is made widely available to cancer patients across India. "The trials are ongoing. Hopefully, we can get the approval from the Indian authorities by next year," said Dr Kaul.

'Spastic kids

'Spastic kids can become independent with good treatment' (World Newspapers: 13.4.2012)

Sancheti Hospital introduced a new paediatric orthopaedic and neuro rehab centre on March 29. According to Dr Sandeep Patwardhan, very few doctors specialise in this area which deals with a large number of spastic cases because it is less glamorous and requires long hours.

DNA speaks to Dr Patwardhan about the need to spread awareness about spasticity treatment and how the hospital's new department and technology will help.

Q: The hospital recently introduced a new neuro rehab centre. Is there a particular group that you wish to treat?
A: Almost 75% of all patients with neurological problems that come to the orthopedic institute suffer from cerebral palsy (CP) and 25% are adults with other neurological problems. Therefore, our new rehab is focused towards children with CP.

Q: Was a need-based analysis done before starting these centres?
A: We have not done any comprehensive research to launch the centre but I have been working in this field since last 14 years. We intend to offer super specialisation in paediatric orthopaedic along with neuro therapy services at one centre
in Pune.

We had been thinking for the last few years to start such a centre and when we found a suitable partner in Sneh RERC, a Mumbai-based rehab centre for specialised care for cerebral palsy patients, we decided to see it through.

Q: What gap do you hope to fill for treatment of paediatric patients?
A: Earlier, CP patients went for surgery only on their birthdays so we call it the 'birthday syndrome'. All parts of the body are interconnected and hence the surgeries related to CP should ideally be done at one go to have the required effect.

We suggest that patients undergo therapy till the age of 4, take botulinum toxin injections (commonly referred to as botox) from age 4-8 and then go for all the surgeries after that.

Awareness about the benefits of effective management of CP and its role in making spastic children functionally independent is very low and the paediatric neuro rehab is a step to achieve that goal.

Q: Do you plan to introduce any new equipment for treatment?
A: The 2D Gait lab is a new technology that we are introducing. The gait or manner in which a child moves on his or her feet will be caught by the cameras with special software that will help us analyse and correct it. We also have other special equipment for sensory integration and neuro developmental therapy for spastic children.

Swine flu

Swine flu not dangerous: Govt (World Newspapers: 13.4.2012)

The Union ministry of health and family welfare has said there is no mutation in H1N1 (swine flu) to suggest change of virus to dangerous form. The government also said there was no need to impose any travel restrictions or screening at inter-state point of entry, railway stations.

Director of National Institute of Virology, Pune, said the presently circulating strain of H1N1 virus belongs to clade 6 and 7 (a medical term used to describe related organisms descended from a common ancestor). These clades can be cured with Oseltamivir, an antiviral drug which slows the spread of influenza virus.

6 H1N1 screening centres

6 H1N1 screening centres in Nashik (World Newspapers: 13.4.2012)

Taking cognisance of the two deaths caused by swine flu in Nashik last week, the Nashik Municipal Corporation (NMC) has taken special measures to deal with any emergencies that may crop up on account of the H1N1 virus.

Medical superintendent Dr DB Patil informed mediapersons that six screening centres have been opened in the city.

The screening centres have come up at Dr Zakir Hussain Hospital at Dwarka, Bytco Hospital on Nashik Road, Indira Gandhi Hospital in Panchavati, Swami Samarth Hospital and Jijamata Maternity Home in Morwadi and Mico Maternity Hospital in Satpur. Four mobile squads have been set up to offer medical aid on the spot to patients.

A 16-bed isolation ward has been set up the civic body-run Dr Zakir Hussain Hospital that will have a physician, two pediatricians, three anesthetists and nursing staff working round the clock. The ward is also equipped with three ventilators and a central oxygen system.

A total of 47 patients have undergone screening for swine flu at the screening centres of the corporation. Around 43 suspected patients were treated with Tamiflu tablets. One patient has been admitted to Dr Zakir Hussain Hospital and reports of his swab test are awaited, Dr Patil stated.

A total of 11 patients were admitted to the district civil hospital since April 1, out of which 8 are from municipality limits.

Polycystic ovarian disease

Beat polycystic ovarian disease (The Times of India: 13.4.2012)

You can prevent and control polycystic ovarian disease through regular practice of yoga, writes yoga exponent Umesh Dwivedi

In India, around 35% women including young girls, suffer from polycystic ovarian syndrome (PCOS), also known as polycystic ovarian disease (PCOD). Studies show that yoga is very helpful in controlling and preventing these symptoms.

PCOS in a nutshell

Polycystic means multiple or many cysts. These cysts are under-developed follicles in the ovaries. “Syndrome" simply means a set of symptoms like irregular or absence of menses, infertility, high BP, obesity, depression, sleep apnea, insulin resistance and imbalances of other hormones. More weight and insulin resistance can lead to cardiovascular disease and diabetes. Although, causes of PCOS are unknown, heredity and sedentary lifestyle may be contributing factors.

Yogic treatment

Yoga aids in weight loss and correcting the digestive system. It cures constipation and helps in better absorption of food. While practising yoga, you should avoid consuming processed food. Fat intake should ideally be from unsaturated fat. Unhealthy substances like chips, cookies, baked foods, breakfast cereals and candy are full of trans fats or hydrogenated oil which raise LDL, the bad cholesterol, and lower protective HDL, the good cholesterol.

Asattvic yogic diet is recommended, besides fruits, fibre-rich vegetables and whole grains. Intake of Omega 3 present in walnuts, flaxseed, and soya products is good to control insulin and blood pressure.

Practise a s a n as

Yoga poses like m a h a m u d r a stimulates the thyroid gland which regulates metabolism. S a r w a n g a s a n aor shoulder stand pose corrects uterine displacement, menstrual and urinary disorders. B a d d h a k o n a - s a n aor bound angle pose strengthens the bladder and uterus. The pituitary and pineal glands are stimulated and toned through m a t y a s a n a(fish pose). M a nja r a s a n aor cat pose tones the female reproductive system. K a p a alb h a ti(breath purifying) activates the pancreas that generates insulin.

Yoga has been found to lower fasting blood sugar in people with diabetes. Depression, anxiety and emotional disorders are corrected by a n ulo m vilo m p r a n a y a m a. Awareness of the self gives a feeling of contentment as a whole and acceptance of the

way we are. Meditation makes the mind and body stable and helps a woman conceive and normalize cortisol levels, which are released as response to stress.

Fruits, veggies

Older varieties of fruits, veggies were healthier' (The Times of India: 13.4.2012)

Newer, Supermarket Stocks Are Less Nutritious: Study

London: Older varieties of fruits and vegetables may be considerably healthier than their modern supermarket equivalents, a new study has claimed.

A pilot study found that an unfashionable dessert apple that dates back to Victorian times had ten times more of a disease-preventing chemical than its newer, shiny-skinned equivalents.

A team of scientists will now undertake a three-year study, examining older varieties of apples, bananas, onions, mangos and teas.

It has already been found that the Egremont Russet apple, which is often used to make cider, contains considerably more phloridzin than modern glossy fruits.

The chemical increases the absorption of sugar from the digestive system into the blood, and can reduce the risk of type-2 diabetes.

While the Egremont Russet is widely available, the researchers stressed that it has not been intensively farmed for a higher yield and pristine appearance, which can substantially reduce nutrient levels.

The scientists at Unilever, Kew Gardens and Cranfield University in Bedfordshire, believe "pre-domesticated" fruit and veg eaten in years gone by had higher levels of hundreds of chemicals that help prevent disease. These include salicylates, which are used to make aspirin and play a key role in fighting cancer.

Today, some mass-produced fruits and vegetables are stored for months at a time in cold conditions to slow the ripening process. This process depletes the vitamins in the skin.

In addition, supermarkets select the best-looking stock when, in fact, plants produce more nutritious chemicals if they have bruises, as these are produced as a defence mechanism against threats.

Leon Terry from Cranfield University said a "paradigm shift" was required to promote foods based on their health-boosting properties, not their appearance.

"In the Stone Age people would have eaten 20 or 25 different types of fruit and vegetables every day. Now we tend to eat a few of the same ones all the time," the Daily Mail quoted Mark Berry, lead researcher of the study as saying. ANI

OLD IS GOLD: Today, supermarkets select the best-looking stock when, in fact, plants produce more nutritious chemicals if they have bruises

Obesity and diabetes

Lack of sleep tied to obesity and diabetes (The Times of India: 13.4.20120

If you are struggling to get to sleep at night, you may be in danger of diabetes and obesity, scientists say. Researchers at Brigham and Women's Hospital in Boston found that people who slept for less than five hours a day had drastic change in their resting metabolic rates that can add 4.5 to 5.5 kg to their weight in a year.

In the long-run, this could lead to obesity and diabetes, the researchers said. "Within three or four years, you could be obese," Orfeu Buxton, a neuroscientist and sleep expert who led the study, was quoted as saying by Los Angeles Times.

For their study, Buxton and colleagues placed 21 subjects in isolation for nearly six weeks. For the three weeks before the experiment began, the volunteers were instructed to spend 10 hours in bed to ensure they got an optimal level of sleep. Three subjects hit "clinically relevant" prediabetic glucose levels. PTI

Mammography

Mammography out? New blood test can spot breast cancer (The Times of India: 13.4.2012

Toronto: Scientists are one step closer to developing a blood test that could accurately detect breast cancer at very early stages, a breakthrough they say could one day make mammography screening obsolete.

A team at the McGill University in Canada said they have made improvements to the existing technology while discovering a biomarker "signature" for a common subtype of breast cancer — which is estrogen receptor-positive.

They sampled the blood of a group of healthy people and breast cancer patients. They then measured the concentration of 32 proteins in the blood samples.

Using the latest in microarray technology, the team found that out of the 32 proteins, six could be used to establish a signature for the hormone receptor-positive cancer.

David Juncker, who led the study, said, "Mammography is slow and expensive, and it's uncomfortable. So, here the idea is you could do a test in a droplet of blood, and it could be more accurate than a mammograph."

"From this small study we cannot really make the claim, but the hope is that this could become more accurate," Juncker said . Mammography does not work well for women with dense breasts and thus many young and African-American women are actually not well served by the screening. "So this test could be complementary and more sensitive," Juncker said. PTI

Scientists had identified a protein biomarker more than 40 years ago. However, the antigen is also found in healthy people, and cannot be used to detect cancer. PTI

Illiteracy

निरक्षरता से अरबों का नुकसान (Dainik Gagaran: 13.4.2012)

2011 की जनगणना के अनुसार भारत में 74 प्रतिशत आबादी साक्षर और 26 प्रतिशत निरक्षर है। एक रिपोर्ट के अनुसार निरक्षरता के कारण भारतीय अर्थव्यस्था को हर साल 53 अरब डॉलर (करीब 2,650 अरब रुपये) से ज्यादा का नुक़सान हो रहा है। रिपोर्ट में कहा गया है कि इसकी वजह से वैश्विक अर्थव्यवस्था को लगभग 12 खरब डॉलर का नुक़सान हो रहा है। ये रिपोर्ट एक अंतरराष्ट्रीय संस्था वर्ल्ड लिट्रेसी फाउंडेशन ने जारी की है। इसका मुख्यालय ऑस्ट्रेलिया में है। संस्था ने अध्ययन में भारत, चीन, ब्राजील जैसी उभरती अर्थव्यवस्थाओं से लेकर पश्चिम के विकसित देशों और बांग्लादेश, बर्मा, नेपाल जैसे देशों के बारे में अपना आकलन दिया है। रिपोर्ट में लगाए गए अनुमान के हिसाब से ऐसे कई देश हैं जिन्हें निरक्षरता के कारण भारत से भी अधिक नुकसान हो रहा है। इनमें अमरीका, चीन, जापान, जर्मनी जैसे देश शामिल हैं। इसका मुख्य कारण ये है कि मुख्यत: विकसित देशों में दूसरे देशों की अपेक्षा सरकारें निरक्षरता से निबटने में अधिक खर्च करती हैं। संस्था के मुख्य कार्यकारी एंड्रयू के. का कहना है कि इस बात से कोई फर्क नहीं पड़ता कि कोई विकसित देश में रहता है या विकासशील देश। उन्होंने कहा कि हमें निरक्षरता को एक बीमारी की तरह से लेना चाहिए। इसे दूर किया जाना चाहिए। इससे लोगों का जीवन बर्बाद हो रहा है। निरक्षरता का संबंध गरीबी, बेरोजगारी, सामाजिक विलगाव, अपराध और बीमारियों से है। फाउंडेशन का कहना है कि पिछले कई वषरें से निरक्षरता के आर्थिक प्रभावों का मूल्य पता लगाने की कोशिश होती रही है। इसकी गणना के तरीके को लेकर विवाद होता रहा है। लेकिन उसका कहना है कि ये एक तथ्य है कि इससे हर साल वैश्विक अर्थव्यवस्था को 10 खरब डॉलर से अधिक का नुकसान हो रहा है। आज विश्व में हर पाँचवें व्यक्ति को निरक्षरता से जूझना पड़ रहा है। रिपोर्ट में निरक्षरता की माप के लिए अलग-अलग परिभाषा बनाई गई है। इसमें कहा गया है कि निरक्षरता दो तरह की होती है। एक है पूर्ण निरक्षरता जिसमें कि व्यक्ति कुछ भी पढ़-लिख नहीं सकता। मगर संस्था के अनुसार फंक्शनल इलिटरेसी की अवधारणा भी महत्वपूर्ण है जिसमें कि व्यक्ति को सामान्य पढ़ना-लिखना तो आता हो मगर वे उसका इस्तेमाल दैनिक जीवन में काम आनेवाले जरूरी चीजों की जानकारी हासिल करने में नहीं लगा सकते हैं। ऐसे कामों में दवाइयों के लेबल पढ़

पाने, बैंक खातों का हिसाब या नौकरियों के आवेदन लिखने जैसे कामों में निरक्षरता से होनेवाली कठिनाइयों का उदाहरण दिया गया है। दुनिया भर में लगभग 80 करोड़ लोग लिख-पढ़ नहीं सकते। लगभग सात करोड़ बच्चों को प्राइमरी स्कूल की शिक्षा नहीं मिल रही, लगभग इतने ही बच्चे सेकेंडरी स्कूल नहीं जा पा रहे। दुनिया भर में इसका प्रभाव अलग है मगर आम तौर पर निरक्षर लोग अपने बराबर के साक्षर लोगों की तुलना में 30 से 42 प्रतिशत कम कमाते हैं। रिपोर्ट में आर्थिक नुकसान का अनुमान लगाने के लिए कई तरह के निर्धारकों पर ध्यान दिया गया है। इसके अलावा अध्ययन में संस्थाओं और दफ्तरों को निरक्षरता से होने वाले नुकसान का आकलन किया गया है। वहीं एक सर्वे में 70 प्रतिशत संस्थाओं ने माना कि लोगों को साक्षर बनाने पर किए गए प्रयासों से उनके खर्चो में काफी कमी हु