Hypertension

Having high blood pressure while you're pregnant may be linked to having a stroke within several years, a new study says. This link is stronger if your baby was premature.

News in Brief

Building Bridge for Renewable Energy

Bridges are generally exposed to the elements, meaning they generally get a nice dose of sunlight often coupled with some fairly strong crosswinds.

For these reasons the "Solar Wind" bridge design would seem to make a lot of sense, Gizmag reported.

The proposed bridge would harness solar energy through a grid of solar cells embedded in the road surface, while wind turbines integrated into the spaces between the bridge's pillars would be used to generate electricity from the crosswinds.

The brainchild of Italian designers Francesco Colarossi, Giovanna Saracino and Luisa Saracino, the Solar Wind concept was designed for the Solar Park Works--Solar Highway competition that asked entrants to modernize sections of a decommissioned elevated highway stretching between Bagnera and Scilla in Italy.

The road surface would replace traditional asphalt with 20 km (12.4 miles) of "solar roadways" consisting of a dense grid of solar cells coated with a transparent and durable plastic coating providing 11.2 million kWh per year. The designers say this system, combined with the 26 wind turbines integrated underneath the bridge generating 36 million kWh per year, would provide enough electricity to power approximately 15,000 homes.

Migraine Surgery Offers Long-Term Outcome

Surgery to 'deactivate' migraine headaches produces lasting good results, with nearly 90 percent of patients having at least partial relief at five years' follow-up, reports a study in the February issue of Plastic and Reconstructive Surgery, the official medical journal of the American Society of Plastic Surgeons (ASPS).

According to ScienceDaily, in about 30 percent of patients, migraine headaches were completely eliminated after surgery, according to the new study, led by Dr. Bahman Guyuron, chairman of Plastic and Reconstructive Surgery at University Hospitals Case Medical Center and Case Western Reserve University School of Medicine in Cleveland, Ohio.

Dr. Guyuron, a plastic surgeon, developed the migraine surgery techniques after noticing that some migraine patients had reduced headache activity after undergoing cosmetic forehead-lift procedures. The techniques consist of "surgical deactivation" of "trigger sites" in the muscles or nerves that produce pain.

For example, for patients with frontal migraine headaches starting in the forehead, the muscles in that area were removed, as in forehead-lift surgery. This procedure may reduce headache attacks by relieving pressure on key nerve in the frontal area. Other approaches target other migraine trigger sites.

Before surgery, each patient was tested with botulinum toxin A (Botox) to confirm the correct trigger sites. For most patients, surgery targeted at least two trigger sites. The five-year results--including standard measures of migraine-related pain, disability, and quality of life--were evaluated in 69 patients.

Dark-Roasted Coffee Beans Have More Antioxidants

Food scientists at the University of British Columbia have been able to pinpoint more of the complex chemistry behind coffee's much touted antioxidant benefits, tracing valuable compounds to the roasting process.

Lead author Yazheng Liu and co-author Prof. David Kitts found that the prevailing antioxidants present in dark roasted coffee brew extracts result from the green beans being browned under high temperatures, ScienceDaily said.

Liu and Kitts analyzed the complex mixture of chemical compounds produced during the bean's browning process, called the "Maillard reaction." The term refers to the work by French chemist Louis-Camille Maillard who in the 1900s looked at how heat affects the carbohydrates, sugars and proteins in food, such as when grilling steaks or toasting bread.

Antioxidants aid in removing free radicals, the end products of metabolism which have been linked to the aging process.

"Previous studies suggested that antioxidants in coffee could be traced to caffeine or the chlorogenic acid found in green coffee beans, but our results clearly show that the Maillard reaction is the main source of antioxidants," says Liu, an MSc student in the Faculty of Land and Food Systems (LFS).

A Sound System Table

In a small apartment, space is a premium. And that means you probably don't have room for a big, ridiculous speaker. Unless the ridiculous speaker can double as an object more useful in the day-to-day needs, like the Acoustable.

According to Dvice, the Acoustable is a gigantic speaker that doubles as a table, which is pretty clever, really.

Positioned between the table's base and top surface is the sound system that includes stereo amplifier with USB and iPod connection ports. There are USB adaptors within the table that can be extended to hook into PCs, iPods and phones.

And really, it looks pretty good as a table as well, which is important.

Brisk Walking Linked to Better Memory for Seniors

A section of the brain involved in memory grew in size in older people who regularly took brisk walks for a year, researchers reported.

The new study reinforces previous findings that aerobic exercise seems to reduce brain atrophy in early-stage Alzheimer's patients, and that walking leads to slight improvement on mental tests among older people with memory problems, AP wrote.

The new analysis, led by researchers at the University of Pittsburgh and University of Illinois at Urbana-Champaign, appears in the Proceedings of the National Academy of Sciences.

The study involved 120 sedentary people, ages 55 to 80. They were divided into two groups: Half began a program of walking for 40 minutes a day, three days a week to increase their heart rate; the others only did stretching and toning exercises.

The hippocampus, a region of the brain involved in memory, tends to shrink slightly with age and that's what happened in the group that only did stretching. But among people who took part in the walking program, the hippocampus region of the brain grew in size by roughly 2 percent.

Researchers found that there was some memory improvement in both groups, but "in the aerobic exercise group, increased hippocampal volume was directly related to improvements in memory performance."

"We think of the atrophy of the hippocampus in later life as almost inevitable," Kirk Erickson, professor of psychology at the University of Pittsburgh and the paper's lead author, said in a statement.

Spanish Doctors Unveil Promising AIDS Vaccine

Spanish researchers announced Tuesday they have developed an AIDS vaccine which cuts the viral load by a significant amount in most patients although they cautioned it is still not enough as a treatment.

According to AFP, twenty-four AIDS patients took part in a clinical trial carried out by doctors at Barcelona's Hospital Clinic and after 24 weeks the majority had shown a 'significant' decrease in their viral load, the hospital said.

"This decrease was very significant is some of them but in no case did the virus become undetectable," a hospital statement said.

"However this is a very important improvement with respect to previous initiatives where with a similar vaccine there was a modest response in 30 percent of the treated patients. No therapeutic vaccine has achieved up to now the same level of response as in this study."

The vaccine was personalized for each patient as it was made from their own dendritic cells, a special type of cell that is a key regulator of the immune system.

It was administered in three doses with an interval of two weeks between each one.

The researchers hope to develop a therapeutic vaccine to treat AIDS which will reduce the need for antiretroviral drug treatments which are expensive as they must be administered daily.

The results of the clinical trial were first published in the Journal of Infectious Diseases.

A new clinical trial is underway to test the vaccine in conjunction with antiretroviral drugs to allow an improvement in the results.

Kish to Host Concrete Boat Contest

By Sadeq Dehqan

The first national concrete boat contest will be held in Kish island on Feb. 5-7 with the participation of 20 teams from state and Islamic Azad (Open) universities, the secretary of the scientific committee of the event, Mohammad Mehdi Khodaparast said.

"International concrete contests have been held in America and Canada for nearly 35 years. Since 2004 due to the sanctions, Iranian students were not allowed to participate in such events. When our students participated they were among the top three teams.

"Iranian students have participated in various branches of concrete in international contests but had not attended concrete boat contests.

The presence of an Iranian student team in a concrete boat contests costs an estimated 500 million rials ($50,000), which by itself has been a reason behind Iran not participating in such contests," Khodaparast told Iran Daily.

He said after several meetings with concrete experts, it was decided that national concrete boat contests be held inside the country.

"We have received many applications from neighboring states wanting to take part, but since it is being held in the country for the first time, it was decided that only Iranians be allowed. In the next round international participants will also attend".

Khodaparast said concrete boat branch combines the science of civil engineering with yachting.

"Constructing concrete boats offers an opportunity to civil engineering students to use their skill and knowledge in building a concrete structure and use it themselves. Today's students are the engineers of tomorrow.

Concrete boat branch combines the science of civil engineering with yachting.

Problem-solving in the process of designing concrete boats will help the students in future development projects."

He recalled that the concrete boat contest is aimed at upgrading the students' scientific and professional capabilities.

"The yardstick for assessing concrete boats includes design and conditions of construction such as resistance, endurance and quality of the construction material.

The boats should be able to float on water and be fully waterproof. They should be able to carry three passengers. Two paddlers are in each boat while a professional boatman at the level of the national yachting team will guide the small vesselt. The distance for the contest is planned at 200 meters," he said.

In the championship category boats are assessed in terms of design and two professional boatmen compete in the 200-meter race.

The major attraction of the contest is that the boats are made of concrete.

"Most people think that concrete is heavy and it cannot float on water. So students try to design boats in a manner that they can remain afloat and thus they use light concrete," he noted.

He said in the contests held in the US only students participate, but in Iranthe Boating and Water Skiing Federation and the Society of Engineers have also shown interest.

The Kish contest is equiponderant to international contests in terms of distance and mode of construction of boats.

"But, regarding execution of the contest, we still do not have the experience in the concrete boat category and the speed of boats should be measured in compliance with international standards," he noted.

A special workshop on "Improvement of performance and endurance of concrete structures in the Persian Gulf' is also planned for the near future.

"In the Persian Gulf, resistance of concrete in water and soil is lower than other areas and also lifetime of concrete is less than in other regions," he noted.

Professor Ali Reza Khalu of Sharif University of Technology (SUT) will address the workshop. He also is head of American Concrete Institute (Iran Branch).

NASA Spots 54 Potentially Life-Friendly Planets

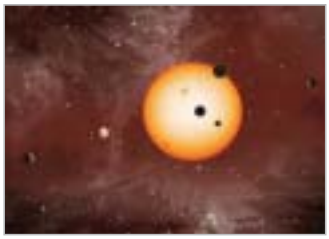
An orbiting NASA telescope is finding whole new worlds of possibilities in the search for alien life, spotting more than 50 potential planets that appear to be in the habitable zone.

In just a year of peering out at a small slice of the galaxy, the Kepler telescope has discovered 1,235 possible planets outside our solar system, AP reported.

Amazingly, 54 of them are seemingly in the zone that could be hospitable to life--that is, not too hot or too cold, Kepler chief scientist William Borucki said.

Until now, only two planets outside our solar system were even thought to be in the "Goldilocks zone." And both those discoveries are highly disputed.

Fifty-four possibilities is "an enormous amount, an inconceivable amount," Borucki said. "It's amazing to see this huge number because up to now, we've had



zero."

The more than 1,200 newfound celestial bodies are not confirmed as planets yet, but Borucki estimates 80 percent of them will eventually be verified. At least one other astronomer believes Kepler could be 90 percent accurate.

After that, it's another big step in proving that a confirmed planet has some of the basic conditions needed to support life, such as the proper size, composition, temperature and distance from its star. More advanced aspects of habitability such as atmospheric conditions and the presence of water and carbon require telescopes that aren't built yet.

Just because a planet is in the habitable zone doesn't mean it has life. Mars is a good example of that. And even if some these planets are found to contain life, it may not be intelligent life; it could be bacteria or mold or some kind of life form people can't even imagine.