Clogged Arteries

An obese child's arteries may be just as clogged as the arteries of someone who is middle-aged, researchers said.

News in Brief

iPill Developed

The Dutch group Philips has developed an "intelligent pill" that contains a microprocessor, battery, wireless radio, pump and a drug reservoir to release medication in a specific area in the body.

According to Reuters, Philips, one of the world's biggest hospital equipment makers, said that the 'iPill' capsule, measures acidity with a sensor to determine its location in the gut, and can then release drugs where they are needed.

Delivering drugs to treat digestive tract disorders such as Crohn's disease directly to the location of the disease means doses can be lower, reducing side effects, Philips said.

While capsules containing miniature cameras are already used as diagnostic tools, those lack the ability to deliver drugs, Philips said.

The 'iPill' can also measure the local temperature and report it wirelessly to an external receiver.

The company plans to present the 'iPill' at the annual meeting of the American Association of Pharmaceutical Scientists (AAPS) in Atlanta this month.

Antidepressant Drug May Reduce Male Fertility

Treatment with paroxetine (Paxil), which belongs to the selective serotonin reuptake inhibitor (SSRI) class of antidepressant drugs, increases DNA fragmentation in sperm, according to research presented at the 64th annual meeting of the American Society for Reproductive Medicine in San Francisco.

Although the study did not directly evaluate male fertility, the five-fold increase in the number of men who developed abnormal sperm DNA while being treated with paroxetine is 'troubling' and "suggests an adverse effect on fertility," co-investigator Dr. Cigdem Tanrikut, from Harvard Medical School in Boston, told Reuters.

"DNA integrity is crucial to normal fertility," Tanrikut said.

"Abnormal sperm DNA integrity even affects pregnancy outcomes of the most advanced assisted reproductive technologies, such as in vitro fertilization (IVF)," she added.

Walk to Curb Chocolate Cravings

A 15-minute walk could stop chocolate cravings, a new study claims.

For the first time, newly-published research shows that exercise may reduce food cravings.

The benefits of exercise in helping people manage dependencies on cigarettes and other drugs have previously been recognized, Telegraph said.

Researchers at the University of Exeter have found that a walk of just fifteen minutes is enough to reduce the urge to eat chocolate.

Professor Adrian Taylor, who carried out the study, said, "Our ongoing work consistently shows that brief bouts of physical activity reduce cigarette cravings, but this is the first study to link exercise to reduced chocolate cravings.

"Neuroscientists have suggested common processes in the reward centers of the brain between drug and food addictions, and it may be that exercise effects brain chemicals that help to regulate mood and cravings.

Crabs 'Bluff' Fighting Ability

A team of Australian ecologists has discovered that some male fiddler crabs 'lie' by growing claws that look strong and powerful but are in fact weak and puny. The study, published in the British Ecological Society's journal Functional Ecology, is the first direct evidence that crabs 'bluff' about their fighting ability.

Dr. Simon Lailvaux, of the University of New South Wales, said the study is important because it helps shed light on dishonesty in the animal kingdom--that is by definition hard to study, Telegraph wrote.

"Dishonest signals are designed to be difficult to detect, so to have a system like fiddler crabs where we're able to do experiments and test hypotheses about dishonesty is pretty cool."

Despite their size--they are just two centimeters across--fiddler crabs are ideal for studying dishonesty in signaling. This is because males have one claw that is massively enlarged, which they use to attract females or fight rival males, and if they lose this claw during fights they can grow a replacement.

In most species the new claw is identical to the lost one, but some species 'cheat' by growing a new claw that looks like the original but is cheaper to produce because it is lighter and toothless.

Dr. Lailvaux and his team, from the Australian National University, measured the size of the major claw in male fiddler crabs, and two elements of fighting ability--claw strength and ability to resist being pulled from a tunnel.

They found that while the size of an original claw accurately reflects its strength and the crab's ability to avoid being pulled out of its burrow, this relationship does not hold true for a regenerated claw.

Dr. Lailvaux said this means that the crabs can 'bluff' their fighting ability by waving their claws without having to fight--and still attract females.

New Mirror Could Diagnose Eye Disease

Scientists in Canada are reporting progress toward a new type of "liquid mirror"--mirrors made with highly reflective liquids--whose shape can be changed to provide superior optical properties over conventional solid mirrors.

The advance could lead to improved instruments for diagnosing eye disease, more powerful telescopes, and other applications, the researchers say, ScienceDaily said.

In the report, Anna Ritcey, Jean-Philippe Dery, and Ermanno Borra note that "liquid mirrors" are not new. Scientists have long recognized that these liquids could provide a low-cost, easy-to-use alternative to solid mirrors for a variety of optical applications while offering the potential for less image distortion.

Researchers have recently developed liquid-mirror telescopes that use mercury as the reflective material. Mercury, however, is toxic and the shape of the surface can't be deformed or adjusted. The scientists describe development of a new type of deformable "liquid mirror" composed of magnetic iron particles, ethylene glycol (a component of automotive antifreeze), and a coating of silver nanoparticles. These materials form a highly reflective mirror whose shape can be changed by adjusting the voltage applied to electromagnets placed below the liquid, allowing the user to fine-tune the mirror's optical properties.

In lab studies, the new material showed better reflectivity and stability than current liquid-mirror materials, the scientists say.

Grape Seed Enlisted Against Alzheimer's

It might be hard to swallow, but the humble grape seed has been enlisted in the fight against Alzheimer's disease.

Scientists say it could prove to be a safe and inexpensive way of tackling the debilitating illness, ABC reported.

It is well known that grapes in moderation contain compounds that are good for the brain.

So researchers at Flinders University, Australia, in Adelaide wanted to find out what impact grape seeds might have on the brain.

They fed grape seed extract to mice with the symptoms of Alzheimer's disease over a six-month period. "What we found was that the level of damage to DNA, which is a fundamental cause of accelerated ageing and degenerative diseases, was reduced by including grape seed extract in the diet of these mice," Dr. Michael Fenech from the CSIRO said.

The grape seed extract prevented the build-up of proteins in the brain that cause Alzheimer's disease and improved brain function.

"The animals behaved better, they have better cognitive function than the control mice," Professor Xin-Fu Zhou, from Flinders University, said.

The results were significant with a 50 percent reduction in the damage to brain cells in those mice given the extract.

Top Math Award For Iranian Professor

A group of five students at Daley College intensely dissects a question about the chances someone with a box full of 10 computer disks would randomly grab the only two that are defective. After some discussion and debate, the group--including a would-be lawyer, nurses in training and a mother of four--figure out there is a one in 45 chance of that happening.

Math professor Vali Siadat hovers nearby in case the students need help, but the fact he didn't have to intervene, students said, shows that a method of teaching he developed works well for entry-level math students from a variety of backgrounds, including some from lower-performing Chicago Public Schools, Suntimes reported.

"We all feed off each other's strengths," said Robert Jones-Acklin, 21."I learn more this way than sitting there for a lecture for four hours."

Siadat's teaching methods, which he has developed over 26 years at Daley College on the Southwest Side, have drawn praise from more than just students.

In January, he will be awarded the Deborah and Franklin Tepper Haimo Award of Distinguished Teaching of Mathematics at a major meeting in Washington D.C. The prize--considered the "gold standard" of national math awards--has never before been given to a community college professor.

"I was surprised I got it because I was up against some famous people," Siadat said of the award bestowed by the 23,000-member Mathematical Association of America.

In 2005, he was named Illinois Professor of the Year by the Carnegie Foundation for the Advancement of Teaching.

Although Siadat, 63, of Lake View, has two doctoral degrees, including one from the University of Illinois at Chicago, he said he remains at Daley because he prefers to work with the diverse, nontraditional students at City Colleges.

An Iranian native, Siadat said early in his career he realized standard teaching methods did not work as well for remedial math students. He developed the "Keystone Method" which focused on letting students learn in small groups, quizzing them frequently about concepts learned and giving them constant feedback on how they are doing in class. Based on the frequent quizzes, Siadat can go back and review areas where students did poorly.

Vali Siadat (standing), has won the "gold standard" of math awards. Past winners have come from Harvard, MIT and the University of Chicago.

The method focuses on developing critical thinking and logical reasoning skills, not just memorizing formulas.

In a study published in August in the math journal Primus, Siadat found that students taught using his method scored better on tests and did better in class. In addition, students also did better in subsequent math courses and even did better on reading tests.

"I think of the classroom as a learning community," he said."Everyone should take interest in everyone else's learning."

Colon Adams, a math professor at Williams College who oversees the MAA award selection committee, said Siadat's "deep concern for the students, and his desire to do everything in his power to help them, made him stand out."

Past winners of the award have come from schools including MIT, the University of Chicago and Harvard.

"Having a big impact on a diverse student body using the limited resources available makes his accomplishments all the more impressive," Adams said.

Potted Plants May Absorb Toxic Gas

As well as brightening your room, potted plants may one day help to prevent headaches in 'sick' houses by absorbing toxic gas, according to Japanese scientists.

Researchers have genetically engineered plants that can absorb formaldehyde, a pungent chemical compound used as adhesive in building materials and furnishing, one of the researchers said, AFP reported.

Formaldehyde is seen as a major factor in what is known as sick-house syndrome-- headaches, dizziness and other health problems triggered by chemical substances in the home.

"We expect the plants to absorb it steadily" along with carbon dioxide for photosynthesis, said Katsura Izui, a professor of molecular plant physiology at Kinki University in western Japan.

The plants have two kinds of genes imported from micro-organisms known as methylotrophs, which use formaldehyde for their growth.

One host plant was tobacco and the other was thale cress, a small plant formally called Arabidopsis, which has a short life span of two months and is widely used as a model plant in biology.

Izui said the amount of formaldehyde absorbed by the plants was small compared with the carbon dioxide they use.

But the study showed that modified Arabidopsis survived four weeks in boxes dense with formaldehyde with the level of toxic gas falling to some one-tenth of the original level.

All wild Arabidopsis died in the same circumstances. Similar results were also obtained with experiments using modified tobacco plants, he said.

Izui said the density drop may have also stemmed from absorption by the agar used as a substitute for soil in the experiment boxes because formaldehyde is highly soluble in water.

"We are now trying to make new devices for more precise observation," he said, adding they were trying to apply the technology in common foliage plants.

Tomatoes Help Treat Endometriosis

Tomatoes could hold the key to a new treatment for a painful condition of the womb that affects around two million women.

A chemical in the fruit which gives it its red color has been found to help prevent scarring associated with endometriosis, Timesonline reported.

A study found that when cells taken from the internal scar tissue were exposed to lycopene in the laboratory they reacted positively.

Lycopene is a powerful antioxidant which mops up other oxidative chemicals that cause damage in the body.

In this case it was found to prevent adhesions, where scar tissue builds up in thin films or thick lumps and can cause internal organs to stick together after surgery or due to certain diseases like endometriosis which can lead to fertility problems.

The disease occurs when cells that usually line the womb are found elsewhere in the body.

The most common symptom of endometriosis is pain or discomfort in the abdomen.

Dr. Tarek Dbouk, from Wayne State University in Detroit, Michigan, said lycopene could become a safe and cheap treatment in these conditions.

In a laboratory study, presented at the American Society for Reproductive Medicine conference in San Francisco, the nutrient was found to cut the presence of proteins that cause tissue to form by between 80 percent and 90 percent.

Simply increasing the amount of lycopene in the diet through taking supplements or increasing the intake of tomatoes could become a preventative treatment before abdominal surgery and may lead to new treatments for endometriosis, he said.