

News in Brief

Moon's Birth Changed Length of Days



The collision that formed our moon may have defined the length of our planet's day and set the direction in which it spins.

The moon is widely thought to have formed after an object roughly the size of Mars crashed into the Earth 4.5 billion years ago, throwing up a cloud of debris that eventually coalesced into a rocky sphere, NewScientist said.

Robin Canup of the Southwest Research Institute in Boulder, Colorado, wanted to find out if this process was influenced by the spin of the Earth at the time—something previous models of the moon's formation did not take into account.

Canup built a computer model that used as many as 120,000 pieces of virtual rock to simulate the two colliding bodies. Her model showed that the Earth's rotation beforehand may have been very different to what it is today.

Prior to the impact, the Earth's axis of rotation may have been steeply tilted, and the planet would have spun much faster, with a day lasting as little as 4 hours.

Chest Pain in Middle-Age an Ominous Sign



In a long-term follow-up study, chest pain felt by men and women in their 40s was a major risk factor for premature death due to heart disease later on.

According to Reuters, in the study, chest pain or angina was determined by answers to a shortened version of the widely used World Health Organization's Rose Angina Questionnaire, which asks three simple questions: Do you get pain or discomfort in your chest when walking up hills, stairs or hurrying on level ground? If you get pain or discomfort in the chest when walking, do you usually stop, slow down, or carry on at the same place?

If you stop or slow down, does the pain disappear after less than 10 minutes, or after 10 minutes or more?

Criteria for angina were answers of yes to the first question, stop or slow down to the second question, and less than 10 minutes to the third question. According to Dr. S. Graff-Iversen from the Norwegian Institute of Public Health in Oslo and colleagues, 16,616 men and 16,265 women ages 40 to 49 years free of heart disease completed the questionnaire between 1974 and 1978. Five years later, between 1977 and 1983, 15,318 men and 15,301 women completed it again.

By the year 2000, 1,316 men (7.9 percent) and 310 women (1.9 percent) had died from heart disease, including 16 percent of men and 4 percent of women with angina in 1974-1978. The risk of death from heart disease was much higher in men and women with angina than in those without, the investigators report in the medical journal Heart.

Nanotechnology Paves Way for Super iPods



A breakthrough by scientists from the University of Glasgow could see the storage capacity of an iPod increase 150,000 times. Nanotechnology researchers have developed a molecule-sized switch which means that data storage can be dramatically increased without the need to increase the size of devices, Physorg wrote.

Professor Lee Cronin and Dr. Malcolm Kadodwala's work would see 500,000 gigabytes squeezed onto one square inch. The current limit for the space is around 3.3 gigabytes. The researchers believe that their development could see the number of transistors per chip rising from today's limit of 200 million to well over one billion.

Saffron May Ease PMS Symptoms



Saffron, a spice known for flavoring Mediterranean cuisine, might also offer an antidote to premenstrual syndrome, a small study suggests.

It's thought that the spice might influence depression symptoms via effects on the brain chemical serotonin. Because alterations in serotonin activity are suspected in PMS, a team of Iranian researchers decided to study whether saffron supplements might help relieve these symptoms, Reuters reported.

Dr. M. Agha-Hosseini and colleagues at Tehran University of Medical Sciences randomly assigned 50 women to take either saffron capsules or a placebo twice a day over two menstrual cycles. The women, who ranged in age from 20 to 45, had all had PMS symptoms such as cramps, bloating, irritability and fatigue for at least six months. At the end of the treatment period, three-quarters of the women on saffron capsules reported at least a 50 percent reduction in their PMS symptoms. That compared with only 8 percent of women in the placebo group, the researchers report in the medical journal BJOG.

New Vaccine Against Bird Flu

A new vaccine under development may provide protection against highly pathogenic bird flu and its evolving forms, according to researchers at Purdue University and the Centers for Disease Control and Prevention who discovered the new preventative drug and have tested it in mice.



Unlike traditional influenza vaccines, the new vaccine could be produced quickly and stored for long periods in preparation for a pandemic of dangerous disease-causing avian influenza--H5N1--and its variants, said Suresh Mittal, a Purdue virologist, ScienceDaily said.

In an earlier study with mice, he and his colleagues found that the vaccine protected against H5N1 for a year or longer. Because the studies have only been done in mice, it's not yet known whether the same results will be obtained in humans.

"We want to have a vaccine that can be stored in advance and have the potential to provide protection for a period of time until we can change the vaccine to match the latest form of avian influenza," Mittal said.

Hothouse Earth Would Halt Plate Tectonics

What would it take to jam a planet's tectonics? It seems that a huge rise in atmospheric temperatures would do the trick, causing continents to grind to a halt, mountains to stop growing and earthquakes to cease.



On Earth, the motion of magma in the mantle pushes continental plates around on the surface, but if the magma became too hot and runny it would lose the grip needed to do this, NewScientist reported.

According to Adrian Lenardic of Rice University in Houston, Texas, and colleagues, a very hot atmosphere can trigger this effect by slowing heat loss from the mantle. The team's model showed that for such effects to occur on Earth, average atmospheric temperatures would need to rise by 60 °C.

Though this is unlikely to happen on Earth in the foreseeable future--it could be caused by a huge rise in volcanic activity but not by human-made climate change--defining this upper limit may help determine if and when other planets, such as Venus, experienced tectonic plate movement.

Iranian Women Vulnerable to Cancer



Breast cancer is the second most common type of cancer after lung cancer and the fifth most common cause of cancer death.

Iranian women seem to develop breast, cervical, uterus and ovarian cancers one decade earlier than the women around the world, head of Shahid Beheshti Medical Science University, Alireza Zali, said on the sidelines of a conference on women cancers.

According to Mehr News Agency, one out of every eight Iranian women was diagnosed with breast cancer at the age of 40-55.

"Cigarette smoking, obesity, increase in trans fatty acid level, which reflects processed food consumption and low levels of physical activity increases the cancer risk, breast cancer in particular," he said.

According to Zali, exercising regularly, controlling weight--levels of BMI--and avoiding smoking decreases the risk of heart and vascular diseases as well as cancers for women.

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Among women, breast cancer is by far the most common cause of cancer both in incidence and death.

The number of cases worldwide has significantly increased since the 1970s, a phenomenon partly blamed on modern lifestyles.

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