

Points of Interest

Microbes Gain Strength in Space

A new study led by researchers from ASU's Biodesign Institute has shown that the tiniest passengers flown in space – microbes – can be affected by space flight, making them more infectious pathogens. Compared with bacteria that remained on earth, space-travelling salmonella had changed expression of 167 genes. After the flight, animal virulence studies showed that the bacteria that were flown in space were almost three times as likely to cause disease when compared with control bacteria grown on the ground.

Joe Caspermeyer *ASU News* September 24, 2007
http://asunews.asu.edu/20070924_MICROBES



Water Filtration System in a Straw

The Vestergaard Frandsen Group's LifeStraw is a powder-blue plastic tube containing filters that make water teeming with typhoid-, cholera- and diarrhea-causing micro-organisms drinkable. The filters, made up of a halogenated resin, kill nearly 100% of bacteria and nearly 99% of the viruses that pass through them.

Though the device does not filter heavy metals such as iron or fluoride or remove parasites like *Cryptosporidium* or *Giardia*, the

Switzerland-based company's chief executive officer says there is a version of LifeStraw available to relief groups in Bangladesh and India that can filter arsenic.

At less than 25 centimetres long, the device can filter up to 700 litres of water, estimated to be about a year's supply for one person.

Larry Greenemeier *Scientific American* February 25, 2008
<http://www.sciam.com/article.cfm?id=water-filtration-system>

Washing Pollution Away with Golden Showers

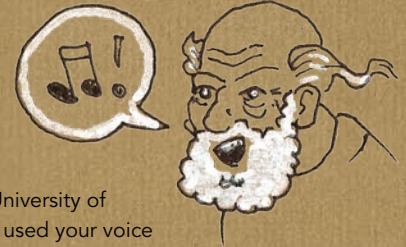
Diesel engines produce less carbon dioxide than gas engines because they're more efficient, but they unfortunately produce more nitrogen oxides. With this problem handled, more Americans would be able to switch over to diesel.

The key ingredient of urine – urea – is the basis of Mercedes-Benz's clean diesel AdBlue technology. The urea-based solution is 32.5% high-purity urea in demineralized water. To work its magic, the solution enters the exhaust stream, where it converts 80% of nitrogen oxide into harmless ammonia.

Discover Blogs March 25, 2008
<http://blogs.discovermagazine.com/discoblog/2008/03/25/washing-pollution-away-with-golden-showers>

Examining the Voice of Experience

When a person hits old age, their vocal apparatus gets worn out and their voice sounds breathier, weaker, higher or huskier. Dr. Tim Bressmann, a professor in the department of speech-



language pathology at the University of Toronto, notes that how you used your voice earlier in life can affect the way and the degree to which it ages. "If you were a good track-and-field runner when you were 15," says Bressmann, "you'll probably still be in pretty good shape later in life if you keep it up to some extent. In the same way, if somebody was a trained speaker or a gifted singer, some of that will likely stick with him or her."

Patricia Hluchy *Toronto Star* March 23, 2008
<http://www.thestar.com/News/Ideas/article/349802>

The Cure for Exhaustion? More Exercise

New research shows that regular low-intensity exercise may help boost energy levels in people suffering from fatigue. "Too often we believe that a quick workout will leave us worn out – especially when we are already feeling fatigued," said researcher Tim Puetz, who recently completed his doctorate at the University of Georgia and is the lead author of a study on whether exercise can be used to treat fatigue. "However, we have shown that regular exercise can actually go a long way in increasing feelings of energy – particularly in sedentary individuals."

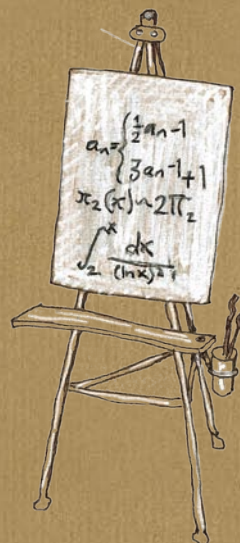
Tara Parker-Pope *The New York Times* Blogs February 29, 2008
<http://well.blogs.nytimes.com/2008/02/29/the-cure-for-exhaustion-more-exercise/>

Brainy Art

The Dana Foundation just released a three-year study that found that early training in the arts is possibly good for your brain. Music education is linked with the ability to control both short- and long-term memory, geometric representation and development of reading skills.

Dance training improves thinking through mimicry and acting classes seem to expand language. Visual arts lessons outside the classroom during childhood are linked to improved math calculations.

While it is not a new idea that the

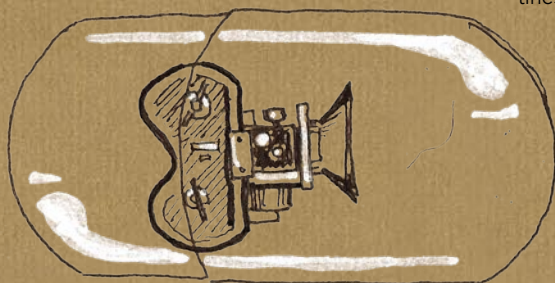


arts can make us smarter, the study ends the popular notion that people are either right- or left-brain learners. Apparently, artists and scientists are not that fundamentally different, and perhaps there is even an underlying connection between the cognitive processes that give rise to both arts and sciences.

Cathy Malchiodi *Psychology Today Blogs* March 23, 2008
<http://blogs.psychologytoday.com/blog/the-healing-arts/200803/brainy-art>

The Endoscope Camera in a Pill

The tiniest endoscope yet takes 30 two-megapixel images per second and offloads them wirelessly. Pop this pill, and eight hours later, doctors can examine a high-resolution video of your intestines for tumours and other problems, thanks to a new spinning camera that captures images in 360 degrees.



Developed by the Japanese RF System Lab, the Sayaka endoscope capsule enters clinical trials in the United States this month.

Gregory Mone *Popular Science* March 13, 2008
<http://www.popsci.com/how-it-works/article/2008-03/how-it-works-endoscope-camera-pill>

Clone Treatment May Help Find Parkinson's Cure

Scientists may soon be able to grow a patient's own brain tissue to repair damage caused by Parkinson's disease, according to a study that marks a milestone in efforts to find a cure. The study, published in the journal *Nature Medicine*, suggests the same method of cloning used to create Dolly the sheep can be used to grow a patient's own brain tissue and repair damage done by the debilitating disease.



The principle is to create specific nerve cells, producing the signalling chemical dopamine, which are destroyed by Parkinson's. An American-Japanese team succeeded in using the "nuclear transfer" cloning method to turn mice tail cells into embryonic cells, and then into the desired nerve cells.

Roger Highfield *Telegraph* March 24, 2008
<http://www.telegraph.co.uk/earth/main.jhtml?view=DETAILS&grid=&xml=/earth/2008/03/24/sciembryo524.xml>

“ I never teach my pupils; I only attempt to provide the conditions in which they can learn.”

- Albert Einstein

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