

For the bottlenose dolphins of Shark Bay, Australia, functional fashion seems to be all the rage, with inclusion in networks dependent on whether one is wearing a nose sponge—a tool that helps dolphins find food—new research suggests.

News in Brief

Up Mouse to Address Hand-Wrist Pain

Daniel Benamy suffers from repetitive strain injury (RSI). His condition was brought on by using a traditional mouse over an extended period of time.

After trying a slew of mice, he could not find one that relieved his pain, and thus, the idea for the Up Mouse was born.

Instead of pushing down on the buttons, the Up Mouse has users lift their fingers to press the buttons, Gizmag wrote.

With a traditional mouse, the pushing force is generated using the flexors. These are the muscles that cause the hand to pull closed.

With the Up Mouse, the clicking is generated using the extensors. The extensors are the muscles used to open the hands. This creates a different motion and can relieve the pain cause by RSI.

Benamy built an interesting-looking prototype to test the idea. Because he suffers from pain induced by a traditional mouse, he was able to get a good idea of whether his prototype was actually relieving his pain.

After three months of using the device as his primary mouse, he says, "it's the best one for me".

To see if the Up Mouse is for you, Benamy suggests placing your hand on your current mouse and lifting each of your fingers ten times.

If this feels better than clicking down, the Up Mouse might be the solution you need. If it hurts the same amount or worse, he suggests passing on the Up Mouse and seeking alternative options.



TV Addiction Boosts Diabetes Risk

Being glued to TV for four hours daily could boost the risk of developing Type 2 diabetes, especially if you are aged 60 or above.

The study, led by Paul Gardiner from The University of Queensland School of Population Health, was one of the first to examine the effects of sedentary behavior and TV watching on older men and women. IANS reported.

"Up until now, most research about sitting and watching TV has been focused on children, while older adults have potentially the most to gain from changing their behavior," Gardiner said.

Researchers found that for each hour a person spends watching TV, his or her risk of developing metabolic syndrome increases. Metabolic syndrome is a cluster of cardiovascular disease predictors linked to the onset of Type 2 diabetes, according to a Queensland statement.

Other lifestyle factors linked to metabolic syndrome include a lack of regular exercise, poor nutrition, high alcohol consumption and smoking.

"Reducing sedentary behavior may be a feasible and practical way for older adults to improve their health and may be particularly important for those whose health or physical functioning limits their participation in moderate-intensity physical activity," he said.



Old Cough Vaccine Protected Better Than New

Older version of the whooping cough vaccine offered better protection against the disease than the current version does, a new study from Australia suggests.

Children who received the older version of the vaccine were less likely to catch the disease before age 12, compared with those who received the newer version of the vaccine, or a combination of the two vaccines, the study found, LiveScience wrote.

The study followed the children during a three-year whooping cough epidemic, which is still taking place in Australia, and nine years before the epidemic.

The work agrees with previous studies showing the protection offered by the newer whooping cough vaccine, called the acellular pertussis vaccine, wanes after a few years. (Whooping cough is also known as pertussis.)

The acellular pertussis vaccine was introduced in the United States in 1997, and in Australia in 1999, after concerns that the previous vaccine, called the whole cell pertussis vaccine, caused unwanted side effects in some. These side-effects included fever and swelling at the injection site.

The older version was less purified, but its protection was thought to last for most of a person's life.

The challenge will be to develop a whooping cough vaccine that offers long-lasting protection from the very first dose, without adverse effects, the researchers of the new study said.

In the study, Sarah Sheridan, of the University of Queensland in Brisbane, and colleagues analyzed information from about 40,500 children born in Queensland in 1998 who had received the required three doses of the whooping cough vaccine during infancy.

China to Build 1st Polar-Icebreaker

China is set to construct its first icebreaker for polar expeditions, state media said, in a move it described as greatly boosting its ability to explore the strategic Arctic.

Melting ice sheets in the far north have opened up the possibility that ships could routinely cross through the Arctic Ocean as a shortcut between China and Europe as well as explore the oil-rich area, AFP reported.

The ship "is expected to greatly boost the country's expedition capacities in polar and oceanic regions", the Xinhua state news agency said, citing the State Oceanic Administration.

The vessel, which will be designed with the help of a Finnish company and will be the first built in China, is set to begin operating in 2014. It will join the already active vessel, Xuelong, which was purchased from Ukraine in 1993.

The 8,000-ton ship will be able to break through 1.5 meters (five feet) of ice, Xinhua said, citing officials from the State Oceanic Administration.

China has said it would like to play a larger role in the Arctic region.

It has applied, alongside the European Union, Japan, South Korea and others, for permanent observer status on the Arctic Council.

The eight-member council—which includes Canada, Denmark/Greenland, Finland, Iceland, Norway, Sweden, Russia and the United States—meets to discuss matters concerning the icy region.

China's interest in the Arctic was highlighted last year when a Chinese property tycoon sought to purchase 300 square kilometers (200 square miles) of land in northern Iceland for a tourism project.



Oxidation Probed In Artificial Photosynthesis

Iranian researchers at the Institute for Advanced Studies in Basic Sciences (IASBS) in Zanjan city have conducted comprehensive studies to identify nanosized manganese oxides as the active catalysts for water oxidation.

The artificial photosynthesis has been a subject of intense debate in recent years with the objective of creating useful materials for solar energy storage by taking inspiration from the natural photosynthesis process. En.nano reported.

Results of the research at IASBS have revealed that nano-metric manganese oxides, formed by the decomposition of manganese complexes, act as active species in the water oxidation process.

By applying a number of common analysis techniques, the researchers came to find similarities in reactions of different manganese complexes with cerium (IV) ammonium nitrate, which is a well-known and popular oxidizing agent.

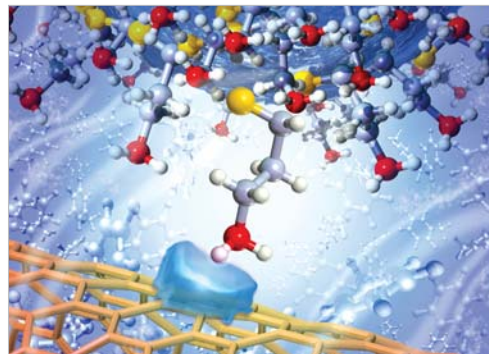
Further studies led them to conclude the presence of a special type of nano-metric manganese oxide in the reactions of a number of complexes within the water oxidation process.

"We postulate that these complexes break down initially to form special manganese oxides which subsequently take part in the water oxidation process by a unique mechanism," Dr. Mohammad Mehdi Najafpour, a member of the research group, explained.

Results of this research shed light on understanding the mechanism of water oxidation and help better design water oxidizing catalysts.

Other researchers may find the work to their interest, as it gives new and useful information on the choice of the compound and the water oxidation mechanism in the presence of manganese complexes.

An elaborate report discussing the details of this research work is due to appear in Dalton Transactions soon this year.



School Chair Designed For Squirmy Kids

Konstantin Grecic's Pro is meant to allow a variety of sitting positions, so that they'll be able to concentrate better.

For kids the world over, school can feel like a punishment. Not only must they pay attention to droning adults, they have to do it on hard, wooden seats.

Classroom furniture may seem like something that should take a backseat to, say, finding better teachers, but behavioral studies suggest that children focus better when they aren't sitting still for hours on end. FastcoDesign reported.

"These studies concluded that kids—especially the small ones—should move around during classes, because they need the physical release so they can concentrate again," Konstantin Grecic tells Metropolis magazine.

"Their bodies are growing and developing."

Working with furniture manufacturer Flo-totto, the German designer developed a chair that would ergonomically support a full range of seating positions.

Grecic's Pro has a rounded seat like a stool's, which doesn't force the body forward, and a curved backrest that fits into the lumbar region and provides a lip at the top, which can serve as an armrest for those who prefer to sit sideways or as a headrest for those who slide their butts forward and lean back.

Although Grecic built the first prototypes out of beech veneer (a traditional choice for school furniture), Grecic switched to polypropylene about six months into the process. The more malleable (and completely recyclable) material is lighter in weight and uses less material, which translates to lower manufacturing and transportation costs.



Panel Recommends Against ECG Tests

Testing electrical activity of the heart using an electrocardiogram is unlikely to help doctors figure out who is at risk of coronary heart disease, according to recommendations from a US government-backed panel.

The United States Preventive Services Taskforce wrote that there's no good evidence the test, also known as an ECG, helps doctors predict heart risks any better than traditional considerations such as smoking, blood pressure and cholesterol levels in people with no symptoms, Reuters reported.

"It could potentially be helpful if we had evidence that doing a test like an ECG or an exercise ECG would better classify the people who are at high risk" of heart disease, said Joy Melnikow, a member of the task force from the University of California, Davis.

"Then we could intervene more actively with the very high-risk group that has the highest potential to benefit."

The taskforce, which published a statement in the Annals of Internal Medicine, recommends against ECG screening of people considered at low risk for heart disease and says there's not enough information to rule one way or the other on those at intermediate or high risk.

On the other hand, there are both costs and possible harms associated with screening healthy adults, Melnikow said.

"The concern is that if people are already at low risk of heart disease and they have one of those tests, if they have an abnormality on the test, it's more likely it will be a false-positive result," she said.

"But an abnormal result, whether a false positive or true positive, generally leads to additional testing, and it's the additional tests that could have some risk."

While ECGs themselves are inexpensive and non-invasive, follow-up tests can involve passing a tube through the heart or other more intensive, costly procedures.

The new recommendations are an update of the USPSTF's 2004 guidelines, which also called for no screening in low-risk adults and said there was insufficient evidence to assess the risks and benefits for screening intermediate and high-risk people.

Melnikow said that instead of asking for tests, people concerned about their heart health can discuss diet, lifestyle and family history risks with their doctor, who can then use a risk calculator to determine

their chance of getting heart disease and treat them appropriately.

"Everyone can benefit from being physically active," she said. "Everyone can benefit from not smoking and people can discuss with their doctors whether they could benefit from taking medication to lower their blood pressure or lower their cholesterol."



Ingestible Sensor Okayed for Tracking Medication

Proteus Digital Health has received FDA clearance for its ingestible sensor.

The sensor (formally referred to as the Ingestion Event Marker or IEM) is part of the Proteus digital health feedback system, which also includes a wireless skin patch (previously called Raisin Personal Monitor) with which the sensor communicates.

The sensor can be integrated into ingested products such as pharmaceuticals, to track when one actually swallows one of these substances, Medgadget wrote.

The sensor measures 1mm square and is made mostly of silicon. It does not contain a battery, but is powered for a short amount of time by contact of two conduc-

tive materials with stomach acid. It sends a signal to the skin patch at the moment it reaches the stomach allowing the patch to record the exact time medication is taken, as well as the unique identity of that medication.

Besides communicating with the ingestible sensor, the patch records heart rate, temperature, activity and rest patterns. The patch is battery-operated and lasts approximately seven days, after which it must be replaced.

The Proteus ingestible sensor can be integrated into an inert pill or other ingested products, such as pharmaceuticals. Once the ingestible sensor reaches the stomach, it is powered by contact with stomach

fluid and communicates a unique signal that determines identity and timing of ingestion.

This information is transferred through the user's body tissue to a patch worn on the skin that detects the signal and marks the precise time an ingestible sensor has been taken.

Additional physiologic and behavioral metrics collected by the patch include heart rate, body position and activity. The patch relays information to a mobile phone application.

With the patient's consent, the information is made accessible to caregivers and clinicians, helping individuals to develop and sustain healthy habits, families to

make better health choices, and clinicians to provide more effective, data-driven care.

