

From Science's Online Daily News Site

Passengers, Keep Your Shoes On

A new device could spare air travelers a major annoyance: removing their shoes in the security line.



A handheld sensor device.

Triacetone triperoxide (TATP), the explosive of choice in footwear—"shoe bomber" Richard Reid tried to ignite his TATP-infused shoes aboard

a flight in 2001—is notoriously difficult to detect directly. So chemist Kenneth Suslick of the University of Illinois, Urbana-Champaign, turned to colorimetric arrays, dots of chemicals deposited on a plastic square, and an acid catalyst called Amberlyst 15. When TATP vapor comes in contact with Amberlyst 15, TATP breaks down into acetone and peroxide, both of which alter an array's colors in predictable patterns that can be compared with

an image database.

The method detects TATP concentrations of two parts per billion within seconds—making it sensitive enough to pick up explosives concealed in shoes, Suslick and colleagues report in the *Journal of the American Chemical Society*. A company is now developing a portable version of the device that security officials could wave near a passenger's shoes. <http://scim.ag/shoes-on>

Malaria in India Much Worse Than Feared

The number of people who die every year from malaria in India could be 13 times higher than current estimates, according to a new study.

Many malaria deaths occur outside of hospitals and thus aren't easily recorded. Malaria can also strike fast, making it even harder to track. To get a better estimate of malaria deaths in India, a team of international scientists led by Neeraj Dhingra of the National AIDS Control Organisation in New Delhi sent

surveyors to randomly selected areas of the country; they asked families and other witnesses to describe deaths that had occurred there between 2001 and 2003.

When physicians reviewed the reports, they attributed 3.6% of roughly 75,000 deaths to malaria. That translates to 205,000 malaria deaths nationwide every year, the researchers report in *The Lancet*. Ninety percent occurred in rural areas, and 86% occurred outside of any sort of health facility. Previous World Health Organization (WHO) reports put the total at 15,000.

Robert Newman, the director of WHO's Global Malaria Programme, says such verbal autopsies are notoriously inaccurate. But other experts say that the new report's estimate could be legitimate, partly because so many deaths slip through the cracks and partly because, at least in terms of geography, the study's stats match up with state-reported malaria deaths. <http://scim.ag/malaria-deaths>

Exercise Boosts Muscle Stem Cells

Exercising can help you age gracefully by keeping you fit. But it turns out that endurance exercise, like running, doesn't just tone muscles, it enhances muscle stem cells, too. Lead author Gabi Shefer of Tel Aviv University in Israel and colleagues report in *PLoS ONE* that the number of muscle stem cells, called satellite cells, increased after rats spent 13 weeks running on a treadmill for 20 minutes a day. Younger rats showed a 20% to 35% increase in the mean number of stem cells per muscle fiber, whereas older rats showed a 33% to 47% increase. These cells regenerate muscles after injury or illness, so the boost could explain why human exercisers have better muscle function than nonexercisers as they age. Better muscle quality could also delay sarcopenia, the decline in muscle mass that occurs with aging. Better hit the gym! <http://scim.ag/muscle-boost>

Read the full postings, comments, and more at <http://news.sciencemag.org/sciencenow>.



Unearthed. Paleontologists dig for primate fossils at Dur At-Talah in Libya.

New Clues to Higher Primate Origins

A new discovery in Libya of fossils from several types of tiny primates suggests that anthropoids—higher primates that include monkeys, apes, and humans—were well established in Africa earlier than previously believed.

Researchers had long thought that anthropoids arose in Africa, but in the past 16 years, tiny primates found in Asia—such as the 45-million-year-old *Eosimias*—have emerged as the strongest candidates for the earliest anthropoids. Now an international team led by paleontologist Jean-Jacques Jaeger of the University of Poitiers in France report in *Nature* that they've unearthed teeth from four new species of primates in central Libya. If the dates of the new fossils are good, this would make them just 1 million years younger than Africa's oldest potential anthropoid fossils. It is unlikely that so many new species evolved in such a short amount of time. So anthropoids either arose in Africa much earlier than thought or arose and diversified in Asia but quickly made their way to Africa. <http://scim.ag/clues-origins>