World News Roundup

Health

‘Free radicals’

Hi-tech textiles latest ‘weapon’

WASHINGTON, June 20 (RTRS): The impact of disease-causing free radicals on the human body may be reduced by wearing special high-tech textiles just a few hours a day, according to a recent international study.

Results from this first time study, showed beneficial effects of these textiles treated with the technology, in reducing free radical levels in healthy individuals as well as in patients suffering from free-radical-related disorders.

In addition, the trial suggested that these textiles may also act as anti-oxidants on the body. The results of the study were published in the Journal of Medicinal Chemistry and Toxicology in May 2016.

George

The patented technology is developed by Nanobionic, an international manufacturer of smart textiles, founded in 2011 by **George** and Ermis Psipsikas, based in New York and Athens, Greece. Nanobionic manufactures smart clothes using innovative textiles that harness and transform the body’s natural energy to enhance athletic performance and overall wellbeing.

Test

The trial -- which was conducted in four medical centers in Greece, Sweden and Italy - recruited 24 volunteers to test the effects of daily use of Nanobionic’s clothes and their connection with the human body’s aging process.

The study was conducted at the National Hellenic Research Foundation and the Orthoviotiki Medical Centre in Greece; rebro University Medical School in Sweden and NEST CNR - Nanoscience Institute and Department of Physics, at the University of Pisa in Italy.

The results showed that wearing Nanobionic clothing for two hours a day during six days, cut free radical levels in peripheral blood cells in two-thirds of healthy volunteers, ranging from 9.13 percent up to 95.38 percent. The researchers also examined the effects of Nanobionic clothing on Raynaud’s syndrome, a rare blood disease linked to oxidative stress and free radicals.

The disease causes the blood vessels in the fingers and toes to narrow when the extremities are cold or the subject is feeling stressed. Raynaud’s syndrome is common among patients suffering with rheumatic disease and vascular conditions.

Produced

There are trillions of free radicals produced daily within the human body, which are naturally dealt by our antioxidant system. But although the body’s mechanisms help prevent the harm from free radicals, this ability gets weaker as the body ages with time.

When the production of free radicals exceeds the body’s protective ability to treat them through the antioxidant system, “oxidation stress” takes place, leading to the irreversible damage of the body’s cellular structure and affecting the cell’s function itself.

As a result, free radicals are being held responsible for many of today’s health ailments, such as obesity, rheumatism, premature ageing, skin disease, Alzheimer’s disease, multiple sclerosis and cataract.

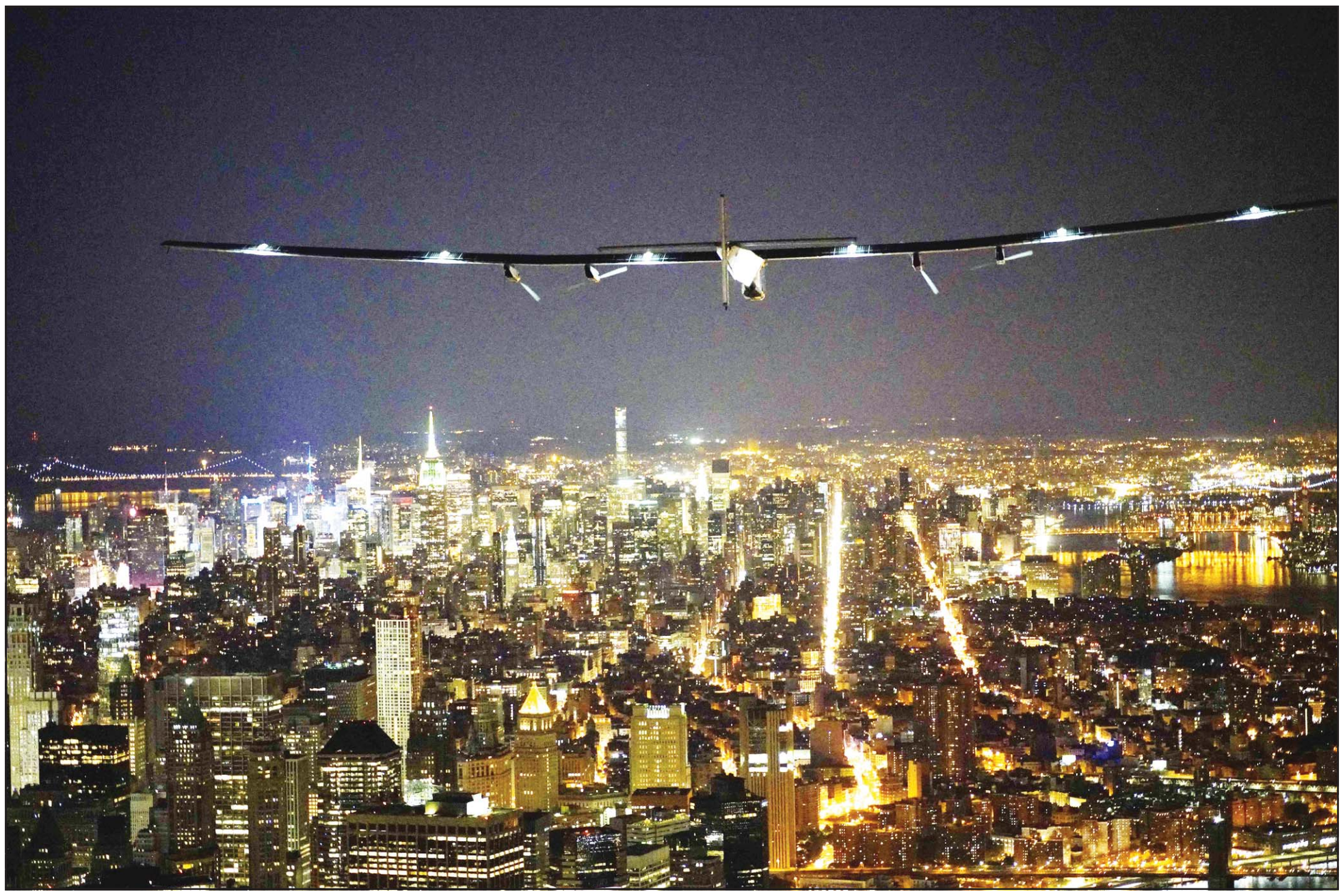
Using a specialized bio-ceramic coating, Nanobionic products take the body’s natural thermal energy and recycle it into far infrared rays, the same rays contained in sunlight that are responsible for the photosynthesis process used by plants to produce energy. Because light stimulates the body’s basic biological functions, recent studies have shown that far infrared energy stimulates metabolism and has a beneficial effect on the body’s wellbeing.

A preliminary report has suggested that the use of these smart textiles has a positive effect on athletes’ performance. The material developed by Nanobionic have shown they can deliver up to a 99 percent return of far infrared energy to the body, resulting in benefits such as; better athletic performance (increased muscle strength and endurance while wearing the clothes) and also benefits the skin causing an improved appearance of cellulite in women. But the latest study shows that the benefits of these smart materials can go further and improve people’s health by fighting the harmful effects of free radicals.

“Nanobionic will revolutionize the way people will be wearing clothes in the future. We have developed a breakthrough technology that improves people’s lives in many different ways” said Nanobionic founders George and Ermis Psipsikas. The company is the recipient of 12 international innovation awards.

The company sells its products through retailers in Europe and online to more than 40 countries.

See Also Page 29



This handout picture taken and released by Solar Impulse 2 on June 20, shows the sun-powered Solar Impulse 2 aircraft flying over New York City after Andre Borschberg took off from Lehigh Valley to New York as he embarks on the transatlantic leg of his record-breaking flight around the world to promote renewable energy. (AFP)

In this photo released by the Xinhua News Agency and taken on June 16, the Sunway TaihuLight, a new Chinese supercomputer, is seen in Wuxi, eastern China’s Jiangsu Province. (AP)

Discovery

China tops supercomputer list: A Chinese supercomputer has topped a list of the world’s fastest computers for the seventh straight year — and for the first time the winner uses only Chinese-designed processors instead of US technology.

The announcement Monday is a new milestone for Chinese supercomputer development and a further erosion of past US dominance of the field.

Last year’s Chinese winner in the TOP500 ranking maintained by researchers in the United States and Germany slipped to No. 2, followed by a computer at the US government’s Oak Ridge National Laboratory in Tennessee.

Also this year, China displaced the United States for the first time as the country with the most supercomputers in the top 500. China had 167 systems and the United States had 165. Japan was a distant No. 3 with 29 systems.

Supercomputers are one of a series of technologies targeted by China’s ruling Communist Party for development and have received heavy financial support. Such systems are used for weather forecasting, designing nuclear weapons, analyzing oilfields and other specialized purposes.

“Considering that just 10 years ago, China claimed a mere 28 systems on the list, with none ranked in the top 30, the nation has come further and faster than any other country in the history of supercomputing,” the TOP500 organizers said in a statement.

This year’s champion is the Sunway TaihuLight at the National Supercomputing Center in Wuxi, west of Shanghai, according to TOP500. It was developed by China’s National Research Center of Parallel Computer Engineering & Technology using entirely Chinese-designed processors.

The TaihuLight is capable of 93 petaflops, or quadrillion calculations per second, according to TOP500. It is intended for use in engineering and research including climate, weather, life sciences, advanced manufacturing and data analytics.

Its top speed is about five times that of Oak Ridge’s Titan, which uses Cray, NVIDIA and Opteron technology.

Other countries with computers in the Top 10 were Japan, Switzerland, Germany and Saudi Arabia.

The TaihuLight is due to be introduced Tuesday at the International Supercomputing Conference in Frankfurt by the director of the Wuxi center, **Guangwen Yang.**

“As the first No. 1 system of China that is completely based on homegrown processors, the Sunway TaihuLight system demonstrates the significant progress that China has made in the domain of designing and manufacturing large-scale computation systems,” Yang was quoted as saying in the TOP500 statement.

The TaihuLight uses Chinese-developed ShenWei processors, “ending any remaining speculation that China would have to rely on Western technology to compete effectively in the upper echelons of supercomputing,” TOP500 said in a statement.

The second-fastest computer, the Tianhe-2 at the National Supercomputer Center in the southern city of Guangzhou, is capable of 33 petaflops. It uses chips made by Intel Corp. (AP)

Yang

Bezos

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‘Rocket’ makes successful flight: The private space company run by Amazon CEO **Jeff Bezos** has completed its fourth successful unmanned rocket launch and safe landing in West Texas using the same vehicle.

Officials with Blue Origin say the latest launch of New Shepard happened Sunday morning near Van Horn. After the rocket landed upright, Bezos (BAY’-zohs) tweeted: “Successful mission.”

New Shepard consists of a capsule designed to take people into space for suborbital flights, along with a booster.

The Washington state-based company also launched New Shepard on Nov 23, Jan 22 and April 2 from the same site. (AP)

Aviation

‘Smooth takeoff’

Si2 begins Atlantic crossing

NEW YORK, June 20, (AFP): The Solar Impulse 2 aircraft was flying over the western Atlantic Monday morning on one of the most difficult legs of its record-breaking bid to cross the globe using only solar energy.

The plane, which took off from New York’s JFK airport at around 2:30 am (0630 GMT), is piloted by Swiss adventurer Bertrand Piccard, who is expected to spend approximately 90 hours — during which he will take only short naps — crossing the Atlantic.

“It’s my first time taking off from JFK,” Piccard said over a live feed from the aircraft as he headed off into the night sky en route to Spain’s Seville Airport.

Several hours later he posted on Twitter that despite a previous full moon there is “now a pink sky in front of me, the day is waking up.”

The voyage marks the first solo transatlantic crossing in a solar-powered airplane and is expected to last four consecutive days and nights, depending on weather.

The plane, which is no heavier than a car but has the wingspan of a Boeing 747, is being flown on its 22,000-mile (35,000-kilometer) trip by two pilots taking turns, Piccard and Swiss entrepreneur Andre Borschberg.

“I’m in the cockpit this time, but we’re flying together,” Piccard told Borschberg before takeoff.

The pair have flown varying legs of the journey, with Borschberg piloting the flight’s final Pacific stage, a 4,000-mile (6,437-kilometer) flight between Japan and Hawaii.

Record

The 118-hour leg smashed the previous record for the longest uninterrupted journey in aviation history.

The plane, now on the 15th leg of its east-west trip, set out on March 9, 2015 in Abu Dhabi, and has taken the aircraft across Asia and the Pacific to the United States with the sun as its only source of power.

“Smooth takeoff and all #Si2 systems have been checked here at the Mission Control Center for the #Atlantic Crossing,” Borschberg posted on Twitter soon after Solar Impulse 2’s departure.

Prince Albert of Monaco, a patron of the project, gave the flight the go-ahead from its mission control center in Monaco, telling Piccard “you are released to proceed.” Approximately a third of the journey still remains for the plane, which will fly through Europe and on to Abu Dhabi after crossing the Atlantic.

The single-seat aircraft is clad in 17,000 solar cells. During nighttime flights it runs on battery-stored power. “Solar Impulse is like a flying smart grid, and if we can make it work in an airplane, where we can’t cheat, we can make it work on the ground, in our cities, for our homes and for all applications,” Borschberg said in a statement.

The plane typically travels at a mere 30 miles (48 kilometers) per hour, although its flight speed can double when exposed to full sunlight.

“Best of luck on this wonderful adventure @bertrandpiccard & all the team,” British billionaire entrepreneur Richard Branson, owner of space tourism company Virgin Galactic, posted on Twitter.

Piccard and Borschberg are no strangers to adventure.

Piccard, a psychiatrist, made the first non-stop balloon flight around the world in 1999. Meanwhile, Borschberg only narrowly escaped an avalanche 15 years ago and in 2013 survived a helicopter crash with minor injuries.

Allen’s firm nears debut of biggest plane

Aircraft to launch satellites into orbit

MOJAVE, California, June 20, (RTRS): A space launch company bankrolled by Microsoft Corp co-founder Paul Allen intends to compete with space entrepreneurs and industry stalwarts by launching satellites into orbit from the world’s biggest airplane.

Stratolaunch Systems, a unit of Allen’s privately owned Vulcan Aerospace, last week gave a small group of reporters a first look at the nearly finished aircraft.

With a wingspan of 385 feet (117 m), the six-engine plane will be larger than Howard Hughes’ 1947 H-4 Hercules, known as the “Spruce Goose,” and the Antonov An-225, a Soviet-era cargo plane originally built to transport the Buran space shuttle that is currently the world’s largest aircraft.

Allen’s move coincides with a surge of new businesses planning to sell Internet access, Earth imagery, climate data and other services from networks of hundreds of satellites in low-altitude orbits around Earth.

But his vision is different from what Elon Musk’s SpaceX, Jeff Bezos’ Blue Origin, Richard Branson’s Virgin Galactic and other companies have for building commercial highways to space.

Musk’s goal is to fly people to Mars. Bezos is developing low-cost, reusable rockets with the goal of moving energy-intensive, heavy industry off Earth. Branson is focused on space tourism and a small satellite launcher.

The advantage of Allen’s approach will be the ability to position the plane so satellites can be directly delivered into very precise orbits and do so quickly, without launch range scheduling issues and weather-related delays, Chuck Beames, who oversees Allen’s space ventures, said.

The Stratolaunch plane looks nothing like its behemoth predecessor aircraft. Rather than transporting heavy cargo inside a main body section, Stratolaunch is a twin-fuselage craft that incorporates engines, landing gear, avionics and other parts from a pair of Boeing 747 jets coupled with a frame, wings and skin handmade of lightweight composites.

Designed and built by Northrop Grumman Corp’s Scaled Composites, the plane is similar in form and function to Scaled’s aircraft built to ferry spaceships into the air and release them for independent rocket rides beyond the atmosphere, a service Richard Branson’s Virgin Galactic intends to offer to paying passengers.

Stratolaunch plans a similar service for satellites, particularly the low-Earth orbiting multi-hundred member constellations under development by companies including SpaceX and Google’s Terra Bella to provide internet access, Earth imagery and other data. But Stratolaunch will offer quick and precise satellite positioning, a service that will set it apart from competitors.

These satellite networks, based on low-cost spacecraft, are the fastest-growing segment of the global satellite industry which reported more than $208 billion in revenue 2015, according to a Satellite Industry Association report.

Walking across the Stratolaunch plane’s wings offers perspective on the vehicle’s dimensions.

“You could fit a football field up here,” said Beames.

Assembly of the plane is 76 percent complete, with the engines, landing gear and one tail section still to be installed. The plane is expected to be finished before the end of the year. Commercial services are expected to begin before 2020.

When the plane was announced in 2011, Musk’s Space Exploration Technologies, or SpaceX, was hired to provide a version of its Falcon rocket to catapult medium-class payloads into orbit after they were dropped by the Stratolaunch carrier aircraft.

When that arrangement fell through, Stratolaunch looked to Orbital ATK for a booster rocket but those plans were tabled as well due to technical issues.

Now, the company is mulling multiple partnerships with several rocket companies to provide launch services for small and medium-sized satellites. Human spaceflight for business and research is not in the immediate business plan, Beames said.

The plane is designed to carry a rocket and payload with a combined weight of up to 550,000 pounds (250,000 kg), on par with what a SpaceX Falcon 9 rocket can launch from the ground.

Allen played an early role in stimulating what has come to be called the “new space” industry, partnering with Scaled’s founder Burt Rutan to pay for development of SpaceShipOne, the first and so far only privately funded spaceship to fly people beyond the atmosphere.

“Just like computing devices are rapidly changing what they can do and our way of life, access to space is changing the way we live,” said Beames.