

## A device to harvest energy from walking, jogging

Scientists have developed a novel wearable device that could generate energy from the swing of an arm while walking or jogging.

The device, about the size of a wristwatch, produces enough power to run a personal health monitoring system, according to the researchers.

"The devices we make using our optimised materials run somewhere between 5 and 50 times better than anything else that's been reported," said Susan Trolier-McKinstry, a professor at Pennsylvania State University in the US. Energy-harvesting devices are in high demand to power the millions of devices that make up the internet of things. By providing continuous power to a rechargeable battery or supercapacitor, energy har-

vesters can reduce the labour cost of changing out batteries when they fail and keep dead batteries out of landfills, researchers said. Certain crystals can produce an electric current when compressed or they can change shape when an electric charge is applied. This piezoelectric effect is used in ultrasound and sonar devices, as well as energy harvesting. Trolier-McKinstry and her former doctoral student, Hong Goo Yeo, used a well-known piezoelectric material, PZT, and coated it on both sides of a flexible metal foil to a thickness four or five times greater than in previous devices. Greater volume of the active material equates to generation of more power. By orienting the film's crystal structure to opti-



mize polarisation, the performance of energy harvesting was increased. Researchers at the University of Utah and in Penn State designed the novel wristwatch-like device that incorporates the PZT/metal foil materials. The device uses a freely rotating, eccentric brass rotor with a magnet embedded, and multiple

PZT beams with a magnet on each beam. The slow frequency of a rotating wrist is converted into a higher frequency oscillation. The design of this device is more efficient than a standard electromagnetic harvester — like those used in self-powered watches — according to Trolier-McKinstry.

## National Nutrition Week: Why Is The Week Celebrated

National Nutrition Week is celebrated from September 1 to September 7 to highlight the importance of having a balanced nutrition diet. It also focuses on the importance of building an effective immune system. The body needs nutrition in order to grow and develop, physically as well as mentally. A number of events and seminars are organised across the globe to stress the importance of nutrition and how can a person bring a change to their lifestyle. In today's fast-paced world, most of us often tend to give less attention to our eating



habits. And, the week reminds us to make the necessary tweaks.

History  
The Integrated Health And Wellbeing Council institu-

tionalised "Bharat Nutrition Week" in the year 2020. Basically, the main idea behind establishing this special week is to educate people about the importance of

a nutrition-rich diet. According to Global Hunger Health Index Report 2021, India ranked 101st among 116 countries. With a score of 27.5, India has a level of hunger that is serious. On the other hand, India also has a large number of people who are obese. The urban population mainly experiences obesity due to unhealthy lifestyle choices, haphazard eating patterns, and usage of processed and refined food items. A balanced diet loaded with fibre, proteins, minerals, and vitamins is highly recommended by nutritionists.

## Parents, ensure your kids don't skip breakfast

A study by researchers at King's College, London, has found that children who skip breakfast regularly may not be consuming the daily amounts of key nutrients need for growth and development. Children who ate breakfast every day were deemed to have overall superior nutritional profiles. These children were found to have higher daily intakes of key nutrients such as folate (important for the development of genetic material), calcium, iron and iodine (key in the development of thyroid function) than children who skipped breakfast.



The team of researchers used food diaries collected for UK's National Diet and Nutrition Survey Rolling programme between 2008 and 2012 from a group of 802 children aged 4 to 10 years and 884 children aged 11 to 18 years. Nutrient

intake was assessed using a food composition databank from the Department of Health. Breakfast was considered as consumption of over 100 calories between 6 and 9am.

Dr Gerda Pot, senior author of

the study and Lecturer in Nutritional Sciences at King's College London said: "This study provides evidence that breakfast is key for parents to ensure that their children are getting the nutrition they need. The study also showed that only 6.5 per cent of 4 to 10 year-olds missed breakfast every day, compared with nearly 27 per cent of 11 to 18 year-olds. Data also suggested that girls were more likely to miss breakfast than boys and household income was found to be higher in the families of children eating breakfast every day.

## Magadh Super 30 helps fulfil dreams

Patna: Students from remote villages of Maoist-hit districts of Bihar have made it to top engineering institutes over the past few years, thanks to an unconventional coaching centre in Gaya town. Bright students from underprivileged families of Gaya and neighbouring districts of Magadh region prepare for tests like JEE and AIEEE at 'Magadh Super 30' under the guidance of a former police officer.

Former Bihar Director General of Police,

Abhayanand, who started the endeavour in 2008, told PTI here, "We do not boast that all our students will make it to the IITs, though many of them do. Others are not left in the lurch either as they get selected for institutions like the NITs. "Although it is called Magadh Super 30, the number is only indicative. The focus is on helping students with the requisite aptitude." Incidentally, Abhayanand had co-founded the legendary 'Super 30' in Patna

along with mathematician Anand Kumar. A gold medalist in Physics from Patna Science College, Abhayanand had been driven by an urge to help meritorious students from underprivileged backgrounds to realize their potential. "Due to unavoidable circumstances, I had to dissociate myself from the Super 30 in 2007. But in 2008, I was egged on by my friends in Gaya, my home town, to start a similar project there," the 1977 batch IPS officer, who has

devoted himself full time to teaching since retirement in 2015, said. "The situation was quite bleak. An atmosphere of fear pervaded in the area due to Maoist violence, which was at its peak in the 1990s, had cast a long shadow", the former DGP said. There was no dearth of talent but basic facilities like good, functional educational institutions were a rarity in the region. "So I felt this was a place where I ought to expend my energy," he said.

## Climate change can add more risks for kids, adults with lung conditions



PARIS: Children and adults living with lung conditions, such as asthma and chronic obstructive pulmonary disease (COPD), face even greater risks from climate change, according to a report on Monday. The report, published in the European Respiratory

Journal, brings together evidence on how the effects of climate change, such as heatwaves, wildfires and flooding, will exacerbate breathing difficulties for millions of people around the world, particularly babies, young children and the elderly.

"Climate change affects everyone's health, but arguably, respiratory patients are among the most vulnerable. These are people who already experience breathing difficulties and they are far more sensitive to our changing climate. Their symptoms

will become worse, and for some this will be fatal," said Professor Zorana Jovanovic Andersen, Chair of the European Respiratory Society's Environment and Health Committee. "Air pollution is already damaging our lungs. Now the effects of climate change are becoming a major threat to respiratory patients," she added. According to the report, these effects include higher temperatures and a subsequent increase in airborne allergens, such as pollen. They also include more frequent extreme weather events such as heatwaves,

## Urgent care centres often give pointless antibiotics: Study

Patients with common colds and respiratory illnesses may be more likely to get antibiotics — which don't work for these conditions — when they go to an urgent care clinic, a US study suggests.

Overall, 39 per cent of visits to urgent care centres resulted in antibiotic prescriptions, the study found. When patients went to urgent care for conditions like the flu and bronchitis that can't be fixed with antibiotics, 46 per cent of them still got antibiotic prescriptions.

"Taking an antibiotic when it is not needed provides no benefit and could be harmful," said senior study author Dr Katherine Fleming-Dutra, deputy director of the Office of Antibiotic Stewardship at the US Centres for Disease Control and Prevention in Atlanta.

Among other things, needless use of antibiotics can increase patients' risk of getting antibiotic-resistant infections, or superbugs that are harder to treat, Fleming-Dutra said by email. Other risks include allergic reactions, diarrhoea, and the potential for harmful bacteria to flourish in the gut and cause infections in the future.

"Antibiotics are life-saving medicines that treat infections caused by bacteria," Fleming-Dutra added. "When a patient needs antibiotics, the benefits outweigh the risks of side effects or antibiotic resistance."

They should be avoided for viruses and even for some mild bacterial infections like sinus infections and ear infections that may sometimes clear up without antibiotics, Fleming-Dutra advised.

For the study, researchers examined data on outpatient visits for US patients under 65 in 2014. This included about 2.7 million urgent care visits, 58,000 retail clinic visits, 4.8 million emergency room visits, and 148.5 million visits to doctors' offices.

When patients went to the doctor, just 7.1 per cent of visits resulted in antibiotic prescriptions. Among 9.2 million visits for colds, flu and other respiratory illnesses that don't need antibiotics, these were prescribed 17 per cent of the time.

## Smokers don't find nicotine bad for kids

While most adults know nicotine is bad for children, smokers and some other individuals aren't convinced of this fact, according to a US study that suggests a need for more public education about the risks of tobacco. Overall, 83 per cent of adults understand that nicotine is "definitely harmful" to children, the analysis of national survey data from almost 12,000 US adults found.

But adults who used multiple tobacco products were 60 per cent more likely than nonsmokers to say nicotine was "not harmful" for children. "It is important that all adults, not just parents of young children or tobacco product users, understand that nicotine is very harmful to children," said lead study author Catherine Kemp, a public health researcher at Georgia State University in Atlanta.

"There is no established safe level of nicotine exposure for children," Kemp said by email. Nicotine exposure can cause upset stomach, nausea, vomiting, changes in heart rate and blood pressure, breathing problems, and seizures in kids and can be fatal at high doses, Kemp noted. Chronic exposure can lead to heart problems, asthma, developmental and behavioural disorders, an increased risk of addiction to other drugs.

In the study, women were 60 per cent more likely than men to recognise that nicotine was "definitely harmful" to kids. Men, meanwhile, were 40 per cent more likely than women to think nicotine wasn't harmful or say they weren't sure about the risks.

Compared to adults with a college degree, people with only a high school diploma were more than twice as likely to say nicotine was not harmful to kids, researchers report in Pediatrics. And when people didn't finish high school, they were three times more likely to think nicotine wasn't dangerous, compared to college graduates. Race was also associated with how adults thought about the risks of nicotine exposure for kids. Compared to white adults, Hispanic and African-American survey participants were much less likely to believe nicotine was definitely harmful.

Most often, kids are exposed to nicotine from a parent or another person who lives in their home, Kemp said. In the study, approximately one-third of tobacco users had at least one young child at home.

One limitation of the study is that the survey focused only on the general question of whether nicotine might be harmful to children under 13 years old, the authors note. Researchers lacked specific data on how people thought about the nicotine risk of specific tobacco products.

Another drawback is that the study lacks data on what's behind people's beliefs about nicotine, so it's unclear how much some individuals might say it's not dangerous for kids out of denial versus out of a genuine lack of understanding of the risks, said Dr. Geetha Raghuvver, a cardiologist at Children's Mercy Hospital and professor at the University of Missouri Kansas City School of Medicine.

Men, for example, might be less aware of the risks than women because they're less likely to take kids to check-ups and hear about the dangers first-hand from a pediatrician, Raghuvver, who wasn't involved in the study, said by email.

## EDUCATION PLUS

### What lies beyond the classroom



The curriculum in Management schools must inculcate job skills and competencies in students as organisations are eyeing for candidates with exceptional skills and the competition is immense. Case study analysis and live projects with industry is a great way to

enhance strategic problem-solving skills. Students at ITM Business School hail from Kashmir to Kanyakumari and the new environment, the educational rigour they experience teaches them to combat any stressful situation. It is said that a caterpillar must experience the journey out of the cocoon on its own to become a beautiful butterfly and this holds true for management students who have to feel the grind during their Management education to be corporate ready. Learning at the B School should be beyond the classroom and even the syllabus, it has to be life & career skills.

Create industry connect

Corporates pick up management students after a through selection process that tests every skill and capabilities. Even the emotional intelligence of the students is tested through psychometric tests, so one can imagine the kind of preparation the students ought to gear up to. There is no escape from fudging ones' emotional state, the truth alone speaks. Management students have to realise that the selections by corporates is out of hundreds and thousands of students from varied colleges spread across India. The wide choice that companies enjoy in selecting the right candidate is what prompts B Schools to innovate and create the best learning for their students. ITM came out of its conventional two months internship realising that corporates want the students to have prior understanding of the corporate culture, be more savvy at work, have real on the job training and have a broad understanding of business before they enter into the corporate world.

Be part of Events and Extra-curricular Activities

The various extra-curricular activities in colleges provides ample opportunities for students to improve their team skills, planning, organising, problem solving and leadership skills. Students must never shy away from challenges that give them a chance to face huge crowds and competitions that make them stronger whether they win or lose.

Clubs, Committees and Alumni interactions to enhance interpersonal skills

Becoming members of various clubs like the Book club, Debate club, Music Club, Sports Club etc makes them pursue their hobby and at the same time a chance to develop interpersonal skills. Alumni interactions is a great way to develop networking skills and alumni can be great mentors for the students.

Be aware of Daily News

Reading the newspaper is very important for every management student. Nowadays there are news apps available which can give updates of the industry and the ever-changing world. The students' current news awareness talks volumes about the students' curiosity for learning, their general knowledge and connect with the environment.

Develop Skills through Group discussions and Thought Enhancing Activities

Testing skills through Group discussion and making it an elimination round has become common with most corporates. GDs bring out communication skills, analytical skills, knowledge, team skills and presentation skills, all at one go! Basically, students must know to make a mark even in a crowd of disjointed opinions. Well prepared students who have participated in several group discussions will have an edge over the others.

Aptitude and attitude are criteria that corporates want the youngsters to possess. Mathematical proficiency, logical reasoning and verbal ability, though have been entry points for management programs, students have to constantly upgrade to the expectation of corporates through regular practice.

Conclusion- Conscious Preparation

A plethora of activities other than class room learning is essential for varied skills that companies are seeking in the ideal candidate. There is wealth of information that students gain in the two years of Management Education, but to get the best out of the exposure, students have to be alert and conscious about picking up every practical skill which is hidden in the extra curricular activities, that is what we call holistic learning!

## Importance of teacher training

It is important to understand that teaching is an evolving skill because a good teacher like a good student keeps on learning within the framework of information. Teaching and learning go hand in hand & teaching is truly lifelong which makes it important for schools to invest immensely in professional development of staff.

Professional Development is the need of the hour and continuous teacher training/enhancement is necessary for teachers to equip themselves & cater seamlessly to the 21st century learner.

It is a known fact those students who have well informed teachers tend to perform far better than their peers. Therefore, it is very important that the school management /leadership team pay attention to professional development of staff.

Training of staff must centre on subject-specific training and generic training that lead to the holistic development of all those concerned. Teacher training is important for both experienced and those teachers who are novice to the teaching profession. Teachers must get a hang of innovative pedagogy, interactive assessment techniques and use of differentiation in the classroom to enliven the teaching-learning process. It's important that teachers be aware of the different kind of learners under their care and ways of dealing with them—that's where good teacher training comes to play. Good teacher training leads to positive learning environments and in turn this leads to happy children who are more than willing to come to school.

Mentoring and coaching too, form a part of teacher training which helps teachers learn from best practices and analyze and reflect on their teaching.

Thus, ongoing Professional Development is critical part of the teaching-learning process. Good teacher training puts emphasis on updating teachers with latest research in the education field.

It's important that teachers know how children learn, it's important that teachers know up-and-coming technology tools for enhancing the classroom experience. Teachers must learn to collaborate, innovate and reflect and that's where professional development comes to play. Learn, unlearn & relearn is the only pathway to be a successful & outstanding teacher. Therefore, why questions our thought processes and say Yes to professional development- that's how important it is...