



DAILY NEWS BULLETIN

LEADING HEALTH, POPULATION AND FAMILY WELFARE STORIES OF THE DAY
Friday 20190426

Immunisation levels

WHO says one in 10 children did not get vaccinated in 2016 (The Hindu: 20190426)

<https://www.thehindu.com/sci-tech/health/who-says-one-in-10-children-did-not-get-vaccinated-in-2016/article26946212.ece>



Global health body worried about immunisation levels

Despite immunisation being one of the most successful and cost-effective means to help children grow into healthy adults, worldwide 12.9 million infants — nearly 1 in 10 — did not receive any vaccination in 2016.

The figures released by the World Health Organisation (WHO) during the ongoing immunisation week added that this means infants missed the first dose of diphtheria-tetanus-pertussis (DTP) vaccine putting them at serious risk of these potentially fatal diseases.

What is worrying, says WHO, is the fact that “global vaccination coverage remains at 85%, with no significant changes during the past few years. An additional 1.5 million deaths could be avoided if global immunisation coverage improves.”

Over the years, the positive trend “has been the increasing uptake of new and underused vaccines”. In fact, according to WHO in 2017, the number of children immunised – 116.2 million – was the highest-ever reported. Since 2010, 113 countries have introduced new vaccines, and more than 20 million additional children have been vaccinated.

“But despite gains, all of the targets for disease elimination — including measles, rubella, and maternal and neonatal tetanus — are behind schedule, and over the last two years, the world has seen multiple outbreaks of measles, diphtheria and various other vaccine-preventable diseases. Most of the children missing out are those living in the poorest, marginalised and conflict-affected communities,” it warned.

Immunisation prevents illness, disability and death from vaccine-preventable diseases including cervical cancer, diphtheria, hepatitis B, measles, mumps, pertussis (whooping cough), pneumonia, polio, rotavirus diarrhoea, rubella and tetanus.

An estimated 169 million children missed out on the first dose of the measles vaccine between 2010 and 2017, UNICEF said.

ICMR project

ICMR project to help rescue ‘heart patients’ near AIIMS (The Hindu: 20190426)

<https://www.thehindu.com/news/cities/Delhi/icmr-project-to-help-rescue-heart-patients-near-aiims/article26947456.ece>

Motorcycle-borne trained paramedic and nurse would be the first responders

The Indian Council of Medical Research (ICMR) launched a pilot project — Mission DELHI (Delhi Emergency Life Heart-Attack Initiative) — in a range of 3 km around All India Institute of Medical Sciences (AIIMS) where people may soon be able to call (toll free numbers 14430 and 1800111044) for a motorbike-borne emergency medical assistance unit in the eventuality of heart attack or chest pain.

The project has institutional support from Cardiology & Emergency Medicine departments of AIIMS and funding from the ICMR.

Under the project, a pair of motorcycle-borne trained paramedic and nurse would be the first responders for treating heart attack patients, stated the ICMR. On getting the call, the pair would rush to the spot, gather basic information on his or her medical history, conduct a quick medical examination, take the ECG of the patient and establish a virtual connect with the cardiologists at AIIMS, and deliver medical advice and treatment.

A release issued by the council added that while the emergency treatment is being provided, a CATS ambulance will arrive and take the patient for further treatment. Even as the patient is on way to the hospital, qualified doctors posted round the clock at the control centre at AIIMS will evaluate the data received from the nurses to establish a further course of treatment as soon as the patient reaches the hospital.

Reaching aid faster

The idea of the project (motorcycle borne) is to reach with medical help much faster, given the high-density traffic conditions in the city where the movement of four-wheeler ambulances becomes difficult.

At the launch of the project, director-general ICMR Prof Balram Bhargava explained the heart is like a room that pumps blood to the entire body. “Before the blood is pumped to the body, it is pumped to the walls of the heart through three pipes [coronary arteries]. If any of these pipes are clogged by a clot, the tissues in that part of the heart will die. If the heart walls are damaged, they cannot be repaired. Clot busters are almost equal to angioplasty. Clot busters can be given within a short time after a heart attack,” he said.

“In this project, the clot buster will be given very soon even at home. Mission Delhi focuses on the importance of timely response and doorstep care saving the heart in time is the philosophy behind the programme,” he added.

AIIMS director Randeep Guleria said as there is a need for strategy change to save cardio patients the pilot project is started. “We also need to see the shortcomings of this pilot project if any and then overcome those for starting a nation-wide project,” he added.

Infant - WHO's new guidelines.

1-year-olds should've no screen time: WHO (The Tribune: 20190426)

<https://www.tribuneindia.com/news/health/1-year-olds-should-ve-no-screen-time-who/763607.html>

Infants under the age of one year should not be exposed to electronic screens at all and “sedentary” screen time for children under five must not be more than an hour a day, according to the WHO's new guidelines.

The guidelines were issued as part of a campaign to tackle the global obesity crisis and ensure that young children grow up fit and well, particularly since development in the first five years of life contributes to children's motor and cognitive development and lifelong health.

In recommendations specifically aimed at under-fives for the first time, the UN health agency said that about 40 million children around the globe - around six per cent of the total - are overweight. Of that number, half are in Africa and Asia, it noted.

The World Health Organization (WHO) said that children under five must spend less time sitting watching screens, or restrained in prams and seats, get better quality sleep and have more time for active play if they are to grow up healthy.

“Achieving health for all means doing what is best for health right from the beginning of people's lives,” WHO Director-General Tedros Adhanom Ghebreyesus said.

“Early childhood is a period of rapid development and a time when family lifestyle patterns can be adapted to boost health gains,” Ghebreyesus said.

The new guidelines on physical activity, sedentary behaviour and sleep for children under 5 years of age were developed by a WHO panel of experts.

They assessed the effects on young children of inadequate sleep, and time spent sitting watching screens or restrained in chairs and prams. They also reviewed evidence around the benefits of increased activity levels.

“Improving physical activity, reducing sedentary time and ensuring quality sleep in young children will improve their physical, mental health and well-being, and help prevent childhood obesity and associated diseases later in life,” says Dr Fiona Bull, programme manager for surveillance and population-based prevention of noncommunicable diseases at WHO.

The guidelines – which refer to passive activities such as watching cartoons, for example, as opposed to going online to talk to a grandparent - build on data gathered in countries including Canada and Australia, which show that as many as 75 per cent of children do not have healthy lifestyles.

“Sedentary behaviours, whether riding motorised transport rather than walking or cycling, sitting at a desk in school, watching TV or playing inactive screen-based games are increasingly prevalent and associated with poor health outcomes,” says WHO’s guidelines on physical activity, sedentary behaviour and sleep for children under five.

Noting the emergence of on-screen applications that help users understand how long they are spending on their devices, Bull noted that there was still much uncertainty about their health impacts.

“This is a recent development and I think it is a signal that the digital industry is also wary about the addictive nature the time that’s being spent using these in different ways.

“Of course, all of us are using them for work, we’re using them in schools for education, we’re using them at home for education. It’s about managing the use of these valuable tools and about watching both the benefits and the risks,” she said.

The guidelines recommended that infants (less than one year) should be physically active several times a day in a variety of ways, particularly through interactive floor-based play. They should not be restrained for more than one hour at a time, whether in prams/strollers, high chairs, or strapped on a caregiver’s back.

Screen time for them is not recommended at all. For young children aged two years, sedentary screen time such as watching TV or videos should be no more than 60 minutes and the less is better.

Children 3-4 years of age should spend at least 180 minutes in a variety of types of physical activities at any intensity, of which at least 60 minutes is moderate- to vigorous intensity physical activity, spread throughout the day. Sedentary screen time for this group of children under age 5 should be no more than one hour and less is better.

The WHO said that failure to meet current physical activity recommendations is responsible for more than 5 million deaths globally each year across all age groups.

Currently, over 23 per cent of adults and 80 per cent of adolescents are not sufficiently physically active. If healthy physical activity, sedentary behaviour and sleep habits are established early in life, this helps shape habits through childhood, adolescence and into adulthood, the agency said.

“What we really need to do is bring back play for children. This is about making the shift from sedentary time to playtime, while protecting sleep,” says Juana Willumsen, WHO focal point for childhood obesity and physical activity.

The pattern of overall 24-hour activity is key: replacing prolonged restrained or sedentary screen time with more active play, while making sure young children get enough good-quality sleep.

Quality sedentary time spent in interactive non-screen-based activities with a caregiver such as reading, storytelling, singing and puzzles is very important for child development.

Further, the important interactions between physical activity, sedentary behaviour and adequate sleep time, and their impact on physical and mental health and wellbeing, were recognised by the Commission on Ending Childhood Obesity, which called for clear guidance on physical activity, sedentary behaviour and sleep in young children.

“More is better,” the WHO report maintains, suggesting that carers should engage in interactive floor-based play and ensure that babies who are not yet walking spend at least 30 minutes on their stomach, rather than sitting in a chair.

“The advice is where possible, to move from sedentary, passive screen time to more physical activity while at the same time protecting that very important quality sleep.

“And what’s particularly important is that quality interactive play with a caregiver that’s so important for early childhood development... that sedentary time should also be protected,” Willumsen added. PTI

Brain implant

Speak your mind: Brain implant translates thought to speech (The Star Online: 20190426)

https://www.thestar.com.my/~//media/online/2019/04/25/09/27/dcx_doc72h6ba8v0yq10f44z8y1.ashx/?w=620&h=413&crop=1&hash=F1664ECD9C980F3B19822B160C28EF1BD58C2CFA

Instead of trying to directly translate the electrical activity to speech, the team behind the study, published in the journal Nature, adopted a three-stage approach. — AFP Relaxnews

Instead of trying to directly translate the electrical activity to speech, the team behind the study, published in the journal Nature, adopted a three-stage approach. — AFP Relaxnews

People unable to communicate due to injury or brain damage may one day speak again, after scientists on April 25 unveiled a revolutionary implant that decodes words directly from a person’s thoughts.

Several neurological conditions can ruin a patient’s ability to articulate, and many currently rely on communication devices that use head or eye movements to spell out words one painstaking letter at a time.

Researchers at the University of California, San Francisco, said they had successfully reconstructed "synthetic" speech using an implant to scan the brain signals of volunteers as they read several hundred sentences aloud.

While they stress the technology is in its early stages, it nonetheless has the potential to transpose thoughts of mute patients in real time.

Instead of trying to directly translate the electrical activity to speech, the team behind the study, published in the journal *Nature*, adopted a three-stage approach.

First, they asked participants to read out sentences as an implant on the brain surface monitored neural activity while the acoustic sound of the words was recorded.

They then transformed those signals to represent the physical movement required for speech – specific articulations of the jaw, mouth and tongue – before converting these into synthetic sentences.

Finally, they crowd-sourced volunteers to identify words and sentences from the computerised speech.

The recordings are uncanny: a little fuzzy, yes, but the simulated sentences mimic those spoken by the volunteers so closely that most words can be clearly understood.

While the experiment was conducted only with people who could speak, the team found that speech could be synthesised from participants even when they only mimed the sentences.

"Very few of us have any idea of what's going in our mouths when we speak," said Edward Chang, lead study author.

"The brain translates those thoughts into movements of the vocal tract and that's what we're trying to decode."

This could potential open the way for an implant that can translate into words the brain activity of patients who know how to speak but have lost the ability to do so.

'Those thieves stole jewels'

The sentences used in the study were simple, declarative statements, including: "Ship building is a most fascinating process", and "Those thieves stole thirty jewels".

Gopala Anumanchipalli, co-author of the study, told AFP that the words used would add to a database that could eventually allow users to discern more complicated statements.

"We used sentences that are particularly geared towards covering all of the phonetic contexts of the English language," he said. "But they are only learned so they can be generalised from."

The researchers identified a type of "shared" neural code among participants, suggesting that the parts of the brain triggered by trying to articulate a word or phrase are the same in everyone.

Chang said this had potential to act as a starting point for patients re-learning to talk after injury, who could train to control their own simulated voice from the patterns learned from able speakers.

Writing in a linked comment piece, Chethan Pandarinath and Yahia Ali, from the Georgia Institute of Technology, Atlanta, called the study "compelling".

"With continued progress, we can hope that individuals with speech impairments will regain the ability to freely speak their minds and reconnect with the world around them," they wrote.
– AFP

Read more at <https://www.thestar.com.my/tech/tech-news/2019/04/26/speak-your-mind-brain-implant-translates-thought-to-speech/#oeLbxuj0TkPY1vd0.99>

Screen Time norms

Screen Time norms for Kids (The Asian Age: 20190426)

<http://onlinepaper.asianage.com/articledetailpage.aspx?id=12884872>

WHO issues screen time norms for kids

United Nations, April 25: Infants under the age of one year should not be exposed to electronic screens at all and "sedentary" screen time for children under five must not be more than an hour a day, according to the WHO's new guidelines.

The guidelines were issued as part of a campaign to tackle the global obesity crisis and ensure that young children grow up fit and well, particularly since development in the first five years of life contributes to children's motor and cognitive development and lifelong health. In recommendations specifically aimed at under-fives for the first time, the UN health agency said that about 40 million children around



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–PTI

Measles vaccine

2.9 million Children in India miss first dose of measles vaccine: UNICEF (The Times of India: 20190426)

<https://timesofindia.indiatimes.com/india/2-9-million-children-in-india-miss-first-dose-of-measles-vaccine-unicef/articleshow/69050298.cms>

NEW DELHI: India has 2.9 million children who have missed out on the first dose of measles vaccine between 2010 and 2017 despite over 80 per cent of immunisation coverage, the UNICEF said on Thursday.

India, with its large annual birth cohort of 25 million, is followed by Pakistan and Indonesia - 1.2 million each, and Ethiopia 1.1 million, it said, adding that the situation is "critical" in low and middle-income countries.

In 2017, for example, Nigeria had the highest number of children under one year of age who missed out on the first dose of vaccine, at nearly 4 million, the United Nations child health body said.

The United States topped the list of high-income countries with most children not receiving the first dose of the measles vaccine between 2010 and 2017 at more than 2.5 million.

It is followed by France and the United Kingdom, with over 600,000 and 500,000 unvaccinated infants, respectively, during the same period.

An estimated 169 million children missed out on the first dose of the measles vaccine between 2010 and 2017, or 21.1 million children a year on an average, the UNICEF said.

Widening pockets of unvaccinated children have created a pathway to the measles outbreak around the world.

"The ground for the global measles outbreaks we are witnessing today was laid years ago," UNICEF Executive Director Henrietta Fore said.

"The measles virus will always find unvaccinated children. If we are serious about averting the spread of this dangerous but preventable disease, we need to vaccinate every child, in rich and poor countries alike," Fore said.

In the first three months of this year, more than 1,10,000 measles cases were reported worldwide - up nearly 300 per cent from the same period last year. An estimated 1,10,000 people, most of them children, died from measles in 2017, a 22 per cent increase from the year before, the body said in a statement.

Two doses of measles vaccine are essential to protect children from the disease. However, due to lack of access, poor health systems, complacency, and in some cases fear or skepticism about vaccines, the global coverage of the first dose of the measles vaccine was reported at 85 per cent in 2017, a figure that has remained relatively constant over the last decade despite population growth.

Global coverage for the second dose is much lower at 67 per cent. The World Health Organization (WHO) recommends a threshold of 95 per cent immunisation coverage to achieve so-called 'herd immunity'.

"Worldwide coverage levels of the second dose of the measles vaccines are even more alarming. Of the top 20 countries, with the largest number of unvaccinated children in 2017, nine have not introduced the second dose," it said in the statement.

The bed and the base for the outbreak of this contagious, dangerous but curable disease is understood from the facts is poured in. As is stated, lack of access, poor health care, complacency and fear...Read More

Twenty countries in sub-Saharan Africa have not introduced the necessary second dose in the national vaccination schedule, putting over 17 million infants a year at higher risk of measles during their childhood.

"Measles is far too contagious," said Fore, adding that "it is critical not only to increase coverage, but also to sustain vaccination rates at the right doses to create an umbrella of immunity for everyone".

Stress

Why Americans are the world's most stressed-out people (The Times of India: 20190426)

<https://timesofindia.indiatimes.com/world/us/why-americans-are-the-worlds-most-stressed-out-people/articleshow/69052148.cms>

Americans are among the most stressed people in the world, according to a new survey. And that is just the start of it.

Last year, Americans reported feeling stress, anger and worry at the highest levels in a decade, according to the survey, part of an annual Gallup poll of more than 1,50,000 people around the world, released on Thursday.

“What really stood out for the US is the increase in the negative experiences,” said Julie Ray, Gallup’s managing editor for world news.

For the annual poll, started in 2005, Gallup asks individuals about whether they have experienced a handful of positive or negative feelings the day before being interviewed. The data on Americans is based on responses from more than 1,000 adults.

In the US, about 55% of adults said they had experienced stress during “a lot of the day” prior, compared with just 35% globally. Statistically, that put the country on par with Greece, which had led the rankings on stress since 2012.

About 45% of the Americans surveyed said they had felt “a lot” of worry the day before, compared with a global average of 39%. Meanwhile, the share of Americans who reported feeling “a lot” of anger the day before being interviewed was the same as the global average: 22%.

Gallup found that being under 50, earning a low income and having a dim view of President Donald Trump’s job performance were correlated with negative experiences among adults in the United States.

“We are seeing patterns that would point to a political explanation, or a polarisation explanation, with the US data, but can we say that definitively? No,” Ray said.

The findings were not all bleak for the US. Despite having widespread negative experiences, Americans also generally reported more positive experiences, on average, than the rest of the world did.

Globally, just 49% of those interviewed said they had learned or had done something interesting the day before. In the US, however, 64% of adults said the same. The two sets of questions about negative and positive experiences, are unconnected, says Ray. An individual can feel both stressed and well-rested in a given day.

Chemotherapy

Researchers discover AI-powered solution to assess impact of chemotherapy (New Kerala: 20190426)

<https://www.newkerala.com/news/read/133131/researchers-discover-ai-powered-solution-to-assess-impact-of-chemotherapy.html>

A recent study claims to have discovered a more personalised smart diagnostic-imaging machine using AI technology which will help identify whether or not a patient will respond well to chemotherapy.

The details of the study were published in the Journal of JAMA Network Open

"And it is further evidence that information gleaned by computational interrogation of the region outside the tumors on MRI (magnetic resonance images) and CAT (computed tomography) scans is extremely valuable and can predict response and benefit of chemotherapy in lung and breast cancer patients," said Madabhushi, a Professor involved in the study.

The research focuses on markers on tissue outside a breast tumour that can indicate whether a patient will respond to targeted chemotherapy.

The researchers have been able to classify patients with breast cancer into molecular subtypes, corresponding to those who are likely to respond to targeted chemotherapy and those who won't, simply by analysing an initial tissue sample.

"The work provides insights into the ability of radio mic analyses to capture clinically-significant tumor biology. It justifies additional studies to assess the clinical utility of such noninvasive approaches to guide therapeutic strategies in this disease," explained Varadan, co-author of the study.

The markers are not found on images made from tissue slides, but outside the tumour itself. They cannot be seen by the human eye, but are revealed by a process known as radiomics, which extracts relevant data from medical images like MRIs.

"Right now, these patients receive 'one-size-fits-all' treatment despite being quite diverse. What we're trying to do here is identify before treatment which patients will actually benefit from specific therapies. This could give doctors and patients information they did not have before," said Braman, another researcher.

Another study, published in March, also evaluates whether computer-extracted image patterns (or radiomics) outside a tumour can indicate whether a lung cancer patient will respond to targeted chemotherapy.

"The problem at the start is that only one in four lung cancer patients will respond favorably to chemotherapy, but virtually everyone gets that treatment," said Mohammadhadi Khorrami, one of the lead researchers.

"By looking both inside and outside the tumor, we achieved an accuracy of 77 per cent in determining which patients would benefit from chemotherapy--far better (68 per cent) than just looking at the tumor itself," Khorrami said.

"This can change the game, not only for the patient when it comes to outcome, but when it comes to cost overall for the health-care field. It costs about USD 30,000 or more a year for

chemotherapy, so it's important to know who will respond to chemotherapy, and we're getting closer to a true biomarker to do that," he added.

Drug overdose

Ease of access to drugs causing spike in overdose among adolescents, young adults: Study (New Kerala: 20190426)

<https://www.newkerala.com/news/read/133104/ease-of-access-to-drugs-causing-spike-in-overdose-among-adolescents-young-adults-study.html>

A recent study has claimed that death rates from drug overdose have sharply increased due to easy access to prescription drugs like opioids.

These drugs are being misused to relieve pain, relax or get high, subsequently leading to death by overdose, said the study which was published in the Journal of Studies on Alcohol and Drugs.

The death rate from drug poisoning from any type of legal or illicit drug rose from both prescription opioids and illicit opioids such as heroin.

"The surge in drug poisoning deaths . . . among adolescents and young adults reflects the ease of access to pharmaceutical drugs, especially prescription opioids . . . and later transition to more potent opioids. Many young people are introduced to opioids through prescription drugs, such as Vicodin or OxyContin. They often misuse these drugs with motivations to relieve pain, relax, feel good, or get high," the authors mentioned.

"When people addicted to prescription opioids face difficulty accessing these drugs because of tighter controls, they often turn to increasingly available and cheaper heroin. Those who switch from prescription drugs to heroin are at high risk for drug overdose because these individuals are "accustomed to titrated prescription drugs and do not realize that heroin varies in potency and can be cut or mixed with dangerous and potentially deadly substances," the authors continued.

Drug poisoning death rates in adolescents and young adults vary by state.

"The burden of drug poisoning deaths among adolescents and young adults is substantial. With the burden of drug poisoning deaths among adolescents and young adults estimated at USD 35.1 billion nationally, targeted state-specific efforts are warranted," researcher Ali and her colleagues concluded.

Interventions that are tailored for high-risk populations and directed at multiple levels are needed to reduce premature deaths from drug overdoses, Ali opined.

Dementia

Drugs promise to prevent stroke and dementia (New Kerala: 20190426)

<https://www.newkerala.com/news/read/133050/drugs-promise-to-prevent-stroke-and-dementia.html>

The drugs - called cilostazol and isosorbide mononitrate - already used to treat conditions such as heart disease and angina, have shown promise to prevent stroke and dementia, a study has revealed.

According to the study published in EClinicalMedicine, it is the first time the drugs have been tested in the United Kingdom for the treatment of stroke or vascular dementia.

Lead researcher Professor Joanna Wardlaw said, "We are delighted that the results of this trial show promise for treating a common cause of stroke and the commonest cause of vascular dementia since currently there are no effective treatments. Further trials are underway."

Dr. James Pickett, Head of Research at Alzheimer's Society, added, "There hasn't been a new drug for dementia for 15 years, so finding evidence that these cheap existing drugs could prevent dementia after a stroke would be a huge breakthrough. It's promising to see that these two drugs are safe to use and we'll be excited to see the results of the next stage of testing in a couple of years, which will show whether these drugs can be an effective treatment."

A study involving more than 50 stroke patients found that patients tolerated the drugs, with no serious side effects, even when the drugs were given in a full dose or in combination with other medicines.

Experts say the findings pave the way for larger studies to check if the treatments can prevent brain damage and reduce risk of stroke and vascular dementia.

Damage to small blood vessels in the brain is responsible for around a quarter of strokes. It is also a common cause of memory problems and dementia.

Around 400,000 people in the UK are affected but there are no specific treatments. Currently, the only way to reduce risk of the disease is by controlling blood pressure and cholesterol, stopping smoking and managing symptoms of diabetes.

A team led by the Universities of Edinburgh and Nottingham recruited 57 patients who had experienced a stroke caused by damaged small blood vessels, known as a lacunar stroke.

Patients took the two medicines either individually or in combination for up to nine weeks, in addition to usual treatments aimed at preventing further strokes.

They completed health questionnaires and had regular blood pressure checks, blood tests, and brain scans.

The findings suggest the drugs are safe for use in stroke patients, taken alone or in combination, at least in the short term.

There were also signs that the treatments helped improve blood vessel function in the arms and brain, and may improve thinking skills, but the researchers stress that further studies are needed to test this. A larger study, called LACI-2, is already underway.

Alzheimer's risk

Smartphone game can help detect Alzheimer's risk (New Kerala: 20190426)

<https://www.newkerala.com/news/read/133032/smartphone-game-can-help-detect-alzheimers-risk.html>

A specially designed smartphone game can detect people at the risk of developing Alzheimer's, say researchers.

The game called Sea Hero Quest, downloaded and played by over 4.3 million people worldwide, helped researchers from the University of East Anglia (UEA) better understand dementia by seeing how the brain works in relation to spatial navigation.

The game has been developed by Deutsche Telekom in partnership with Alzheimer's Research UK, University College London (UCL) and the University of East Anglia.

"Dementia will affect 135 million people worldwide by 2050. We need to identify people to reduce their risk of developing dementia," said Lead researcher Professor Michael Hornberger from UEA's Norwich Medical School.

As players made their way through mazes of islands and icebergs, the research team translated every 0.5 seconds of gameplay into scientific data. The team studied how people who are genetically pre-disposed to Alzheimer's play the game compared with those who are not.

The results, published in the journal PNAS, showed people genetically at risk of developing Alzheimer's can be distinguished from those who are not on specific levels of the Sea Hero Quest game.

The findings are particularly important because a standard memory and thinking test cannot distinguish between the risk and non-risk groups. "Our findings show we can reliably detect such subtle navigation changes in at-genetic-risk of Alzheimer's compared with healthy people without any symptoms or complaints," said Hornberger.

The team studied gaming data taken from 27,108 UK players, aged 50-75 years and the most vulnerable age-group to develop Alzheimer's in the next decade. They compared this benchmark data with a smaller lab-based group of 60 people who underwent genetic testing.

Cardiovascular disease

Prolong antibiotic consumption linked to greater risk of cardiovascular disease in women (New Kerala: 20190426)

<https://www.newkerala.com/news/read/132927/prolong-antibiotic-consumption-linked-to-greater-risk-of-cardiovascular-disease-in-women.html>

A recent study claims that women aged 60 or more, who take antibiotics for two or more months stay at higher risk of heart attack or stroke.

The details were published in the Journal of European Heart.

Professor Lu Qi, the director says that a possible reason why antibiotic use is linked to an increased risk of cardiovascular disease is that antibiotics alter the balance of the microenvironment in the gut, destroying "good" probiotic bacteria and increasing the prevalence of viruses, bacteria or other micro-organisms that can cause disease.

"Antibiotic use is the most critical factor in altering the balance of microorganisms in the gut. Previous studies have shown a link between alterations in the microbiotic environment of the gut and inflammation and narrowing of the blood vessels, stroke, and heart disease," he said.

The researchers studied 36,429 women. They studied factors that could affect results, such as age, race, sex, diet and lifestyle, reasons for antibiotic use, overweight or obesity, other diseases, and medication use, the researchers found that women who used antibiotics for periods of two months or longer in late adulthood were 32% more likely to develop cardiovascular disease than women who did not use antibiotics. Women who took antibiotics for longer than two months in middle age had a 28% increased risk compared to women who did not.

These findings mean that among women who take antibiotics for two months or more in late adulthood, six women per 1,000 would develop cardiovascular disease, compared to three per 1,000 among women who had not taken antibiotics.

The first author of the study is Dr. Yoriko Heianza says "By investigating the duration of antibiotic use in various stages of adulthood we have found an association between long-term use in middle age and later life and an increased risk of stroke and heart disease during the following eight years. As these women grew older they were more likely to need more antibiotics, and sometimes for longer periods of time, which suggests a cumulative effect may be the reason for the stronger link in older age between antibiotic use and cardiovascular disease."

The most common reasons for antibiotic use were respiratory infections, urinary tract infections, and dental problems.

Limitations include the fact that the participants reported their use of antibiotics and so this could be misremembered. However, as they were all health professionals, they were able to provide more accurate information on medication use than the general population.

Prof Qi concluded "This is an observational study and so it cannot show that antibiotics cause heart disease and stroke, only that there is a link between them. It's possible that women who reported more antibiotic use might be sicker in other ways that we were unable to measure, or there may be other factors that could affect the results that we have not been able to take account of.

"Our study suggests that antibiotics should be used only when they are absolutely needed. Considering the potentially cumulative adverse effects, the shorter time of antibiotic use the better."

Cholesterol

Researchers uncover how bad cholesterol enters the walls of artery (New Kerala: 20190426)

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Researchers have unveiled how bad cholesterol enters the artery which leads to narrowing of the blood formation due to the formation of plaque. The narrow blood vessels cause heart attack and strokes, according to a study.

The study published in the journal Nature reveals for the first time how a protein called SR-B1 (short for scavenger receptor class B, type 1) ferries LDL particles into and then across the endothelial cells that line arteries.

The study also found that a second protein called dedicator of cytokinesis 4, or DOCK4, partners with SR-B1 and is necessary for the process.

Since low-density lipoprotein, or LDL, cholesterol entry into the artery wall drives the development of atherosclerosis or hardening of the arteries, and atherosclerosis leads to heart attacks and strokes, future treatments preventing the process may help decrease the occurrence of these life-threatening conditions, said Dr. Philip Shaul, senior author of the study.

In the early stages of atherosclerosis, LDL that has entered the artery wall attracts and is engulfed by important immune system cells called macrophages that ingest, or "eat," LDL particles. LDL-laden macrophages become foam cells that promote inflammation and further the development of atherosclerotic plaques.

The plaques narrow the artery and can become unstable. Plaques that rupture can activate blood clotting and block blood flow to the brain or heart, resulting in a stroke or heart attack.

In studies of mice with elevated cholesterol, the investigators determined that deleting SR-B1 from the endothelial cells lining blood vessels resulted in far less LDL entering the artery wall, fewer foam cells formed, and atherosclerotic plaques that were considerably smaller.

"At the start of this work it was surprisingly unknown how LDL enters the artery wall to cause cardiovascular disease," said Dr Shaul.

"The paper's findings solve that mystery and counter many scientists' prior assumption that LDL simply enters through sites of damage or disruption in the single layer of endothelial cells that serves as the artery wall's protective barrier," added Dr Shaul.

In their studies, the researchers compared SR-B1 and DOCK4 abundance in areas of the mouse aorta that are prone to plaque formation compared with regions less likely to become atherosclerotic.

They found higher levels of SR-B1 and DOCK4 in the disease-prone regions long before atherosclerotic plaques form. This finding suggests that atherosclerotic lesions may be more common in particular artery sites because of more SR-B1 and DOCK4 present there, said Dr. Shaul.

To determine if these findings might apply to people, the researchers reviewed data on atherosclerotic and normal arteries from humans in three independent databases maintained by the National Institutes of Health (NIH). In all three databases, SR-B1 and DOCK4 were more abundant in atherosclerotic arteries compared with normal arteries.

The researchers are now exploring the possibility of using gene therapy to turn off or reduce the function of SR-B1 or DOCK4 in the endothelial cells that line arteries in order to prevent atherosclerosis, Dr. Shaul said.

"If you could develop a drug that inhibits SR-B1 or DOCK4 or a gene therapy that silences them in endothelial cells, you could potentially decrease atherosclerosis and, hence, reduce the incidence of coronary artery disease, heart attack, and stroke. Such strategies would complement current treatments that lower circulating LDL and be particularly valuable in situations in which LDL lowering is challenging," said Dr. Shaul.

Blood thinners

Blood thinners could reduce heart failure risks (New Kerala: 20190426)

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Use of low dose blood thinner could effectively bring down the heart failure risks, found a new study.

The study published in JAMA Cardiology revealed that using blood thinners in patients with worsening heart failure, coronary artery disease or irregular heart rhythms was associated with a 17 per cent reduced risk of thromboembolic events, such as stroke and heart attack.

Heart failure, sometimes known as congestive heart failure, occurs when your heart muscle doesn't effectively pump blood. Certain conditions that narrow arteries, such as coronary artery disease or high blood pressure, gradually weaken or stiffen the heart, reducing its ability to fill and pump efficiently. Researchers say these conditions elevate patients' risk for subsequent issues.

"We found that 17 per cent of patients with heart failure due to not enough blood being pumped out of the heart, coronary artery disease and normal sinus rhythm (the heart's electrical impulse) experience thromboembolic events. This was more frequent than we had originally thought," said Barry Greenberg, a researcher.

"We initially wanted to know if we could improve outcomes in patients after an episode of worsening heart failure using a low dose of blood thinner. What we found was that, while this strategy didn't accomplish that goal, it was associated with a significant reduction in the risk of clinically important events that are caused by thrombosis- stroke, heart attack, and sudden cardiac death," Greenberg added.

According to the Centers for Disease Control and Prevention, approximately 610,000 people die of heart disease in the United States annually -- that's one in every four deaths nationwide. Heart disease is the leading cause of death for both men and women.

The international, randomized COMMANDER HF study included 5,022 patients after discharge from a hospital or in treatment in an outpatient clinic for worsening heart failure. Patients were given 2.5 milligrams of rivaroxaban (a blood thinner marketed as Xarelto) orally twice daily or a placebo in addition to their standard therapy.

"Although there was some increase in bleeding risk with low-dose rivaroxaban, major bleeding, which was the primary safety endpoint of the study, was not significantly increased," said Greenberg.

"This is an important observation because currently there is no mandate in place for physicians to prescribe blood thinners to this patient population," Greenberg added.