



DAILY NEWS BULLETIN

LEADING HEALTH, POPULATION AND FAMILY WELFARE STORIES OF THE DAY
Thursday 20190110

स्वाइन फ्लू

नहीं थम रहा मौतों का सिलसिला, अब शिक्षिका सहित 2 महिलाओं की मौत (Dainik Bhaskar:20190110)

<https://www.bhaskar.com/rajasthan/jaipur/news/two-more-deaths-from-swine-flu-01475888.html>

1 जनवरी से अब तक 15 मौत हो चुकीं, 429 पॉजिटिव केस सामने आ चुके

जयपुर में सर्वाधिक 48 केस सामने आए, दूसरे नंबर पर जोधपुर

जयपुर. प्रदेश में स्वाइन फ्लू के मरीजों और मृतकों की संख्या हर दिन बढ़ती जा रही है। बुधवार को जयपुर में भर्ती अजमेर निवासी एक सरकारी शिक्षिका तथा उदयपुर के एमबी अस्पताल में भर्ती महिला की मौत हो गई, जबकि 88 पॉजिटिव केस सामने आए।

प्रदेश में एक जनवरी से अब तक कुल 429 पॉजिटिव केस सामने आ चुके हैं और 15 मौतें हो चुकी हैं। जयपुर में सर्वाधिक 48 केस सामने आए हैं। इसके बाद जोधपुर में 14, बीकानेर में पांच केस सामने आए हैं।

वायु प्रदूषण

तेज हवा चलने से पस्त हुआ प्रदूषण, बहुत खराब से खराब की श्रेणी में आया एयर क्वालिटी इंडेक्स
(Dainik Bhaskar:20190110)

<https://www.bhaskar.com/delhi/delhi-ncr/news/pollution-in-delhi-01475886.html>

बुधवार को दिल्ली के साथ ही एनसीआर के शहरों की आबोहवा भी सुधरी हुई दिखी

288 दर्ज किया गया बुधवार को एयर क्वालिटी इंडेक्स

नई दिल्ली. दिल्ली में बढ़ते प्रदूषण को तेज चल रही हवा ने पस्त कर दिया है। दिल्ली के साथ ही एनसीआर के शहरों की आबोहवा बुधवार को बहुत खराब से खराब की श्रेणी में आ गई। हालांकि प्रदूषण का स्तर गुरुवार को फिर बढ़ सकता है क्योंकि हवा की स्पीड बहुत कम रहने की संभावना मौसम विभाग की ओर से जताई जा रही है।

दिल्ली-एनसीआर में 15 किमी प्रति घंटे की रफ्तार से चली है हवा :

सीपीसीबी के मुताबिक बुधवार शाम 4 बजे दिल्ली का एक्यूआई 288 रहा, जो खराब की श्रेणी में था। मंगलवार के मुकाबले 32 प्वाइंट कम रहा। मंगलवार को एक्यूआई 320 था। बुधवार को दिल्ली के साथ ही एनसीआर के शहरों की आबोहवा सुधरी। प्रदूषण स्तर में गिरावट की तेज चल रही हवा को माना जा रहा है। बुधवार को हवा की स्पीड 15 किमी प्रति घंटा थी। मौसम विभाग के मुताबिक गुरुवार को हवा की स्पीड 5 किमी प्रति घंटा रह सकती है।

एक्यूआई शहर

278 फरीदाबाद

288 गाजियाबाद

243 गुड़गांव

264 नोएडा

302 ग्रेनो

राजधानी में वीकेंड पर हो सकती है हल्की बारिश :

मौसम विभाग ने वीकेंड पर हल्की बारिश होने की संभावना जताई है। तापमान सामान्य ही रहेगा। 13 जनवरी के बाद दिन-रात के पारे में 2 से 4 डिग्री तक कमी आ सकती है। बुधवार को दिल्ली में अधिकतम पारा 20.5 और न्यूनतम 8 डिग्री दर्ज किया गया। गुरुवार को न्यूनतम पारे में 1 डिग्री कमी होकर 7 डिग्री रहने की संभावना जताई है।

Centre to launch clean air plan today (Hindustan Times:20190110)

<http://paper.hindustantimes.com/epaper/viewer.aspx>

NEW DELHI: Union environment minister Harsh Vardhan will launch the much-awaited National Clean Air Programme (NCAP) on Thursday to reduce the concentration of PM2.5 (fine, respirable pollution particles) and PM10 (coarse pollution particles) by 20% to 30% by 2024 over the 2017 annual average levels.

According to senior ministry officials, the plan will be collaborative and participatory in nature, which means it will not be legally binding on states. "We are considering a collaborative and participatory approach involving relevant central ministries, state governments, local bodies and other stakeholders with focus on all sources of pollution," said a senior environment ministry.

Besides strategies to reduce air pollution concentration, pollution monitoring networks will be enhanced and activities will be put in place to improve awareness. The Centre will utilise the Smart Cities Mission to launch the NCAP in 43 of the 102 non-attainment cities which did not meet the annual PM10 national standard from 2011 to 2015. Specific action plans are being formulated for these cities, which will be assessed and approved by the Central Pollution Control Board (CPCB). Non-attainment cities are those which do not meet the National Ambient Air Quality Standards for PM 10 (particulate matter that is 10 microns or less in diameter) or NO2 (Nitrogen Dioxide) over a period of five years.

Each city will be expected to reduce their PM2.5 and PM10 concentrations by at least 20% over 2017 baseline. In Delhi, the annual average PM2.5 and PM10 concentrations in 2017 was 124 micrograms per cubic metre and 266 micrograms per cubic metre respectively, which will have to be brought down to 99 micrograms for PM2.5 and 212 for PM10, according to the NCAP.

The NCAP will be operationalised through inter-sectoral groups, which include ministries of road transport and highways; petroleum and natural gas; new and renewable energy; housing and urban affairs among others, the official added.

The institutional framework will comprise an apex committee under the ministry of environment, forest and climate change and a committee at the chief secretary level in the states.

“First, the baseline for different cities needs to be worked out. The NCAP has to detail what is going to be the compliance mechanism to achieve the targets... The compliance mechanism should be binding...,” said Anumita Roy Chowdhury, executive director, Centre for Science and Environment.

“We expect the plan to have specific city-wise, time-bound air pollution reduction targets across sectors. It should have a strong legal back up because without that we might not be able to achieve breathable air quality...,” said Sunil Dahiya, senior campaigner, Greenpeace, India.

आवासीय कॉलोनियों के 73 फीसदी लोग वायु गुणवत्ता से नहीं हैं संतुष्ट : ऊर्जा (Amar Ujala:20190110)

<https://www.amarujala.com/delhi/131547080554-delhi-news>

आवासीय कॉलोनियों के संगठन ऊर्जा ने किया वायु प्रदूषण पर सर्वे

नई दिल्ली। राष्ट्रीय राजधानी की आवासीय कॉलोनियों में रहने वाले 73 फीसदी लोग वायु गुणवत्ता की स्थिति से बिल्कुल भी संतुष्ट नहीं हैं। वहीं, वायु गुणवत्ता मापने वाले स्टेशनों के निकट रहने वाले लोगों को वायु गुणवत्ता और संबंधित स्टेशनों की जानकारी बेहद कम है। 43 फीसदी लोग ऐसे भी हैं जो इस वर्ष वायु गुणवत्ता को पिछले वर्ष से बेहतर मानते हैं। जबकि 30 फीसदी लोग बीते वर्ष की तुलना में हवा की गुणवत्ता और बदतर बता रहे हैं। आवासीय कल्याण संगठनों (आरडब्ल्यूए) की संयुक्त संस्था यूनाइटेड रेजिडेंट्स ज्वाइन एक्शन (ऊर्जा) के ताजा सर्वे में यह बातें सामने आई हैं।

सर्वे और अध्ययन का विषय वायु प्रदूषण को लेकर नजरिया और उत्तरदायित्व रखा गया था। ऊर्जा ने इस सर्वे के लिए केंद्रीय प्रदूषण नियंत्रण बोर्ड (सीपीसीबी) के 10 स्टेशनों को चुना। सभी स्टेशनों की पांच किमी की परिधि में आवासीय लोगों के बीच सर्वे किया। इन 10 स्थानों में रोहिणी, आनंद विहार,

आईटीओ, सिरी फोर्ट, बवाना, आरकेपुरम, पटपड़गंज, लोधी रोड, द्वारका और अशोक विहार की आवासीय कॉलोनियां शामिल हैं।

नहीं जानते वायु गुणवत्ता के मॉनिटरिंग स्टेशन

सर्वे में चौंकाने वाला यह तथ्य भी सामने आया है कि वायु गुणवत्ता मापने वाले मॉनिटरिंग स्टेशन के नजदीक रहने वाले लोगों में वायु गुणवत्ता को लेकर बेहद कम जानकारी है। 89 फीसदी लोगों ने सर्वे में कहा कि उन्हें इस बात की कोई जानकारी नहीं है कि उनके इर्द-गिर्द वायु गुणवत्ता की स्थिति को मापने वाला कोई निगरानी स्टेशन है। जबकि 88 फीसदी लोगों ने कहा कि वे किसी भी तरह की एलईडी स्क्रीन पर वास्तविक समय की वायु गुणवत्ता के आंकड़ों को नहीं जांचते हैं।

नवंबर में रिकॉर्ड हुआ 17 गुना अधिक तक पीएम2.5

सर्वे और अध्ययन रिपोर्ट में कहा गया कि हवा में खतरनाक पार्टिकुलेट मैटर 2.5 के कणों की स्थिति भी कुछ स्थानों पर बेहद खराब पाई गई है। मसलन, बीते वर्ष नवंबर के पहले हफ्ते से लेकर जनवरी तक आनंद विहार में पीएम2.5 का स्तर 960 माइक्रोग्राम प्रति घन मीटर रहा। वहीं, 8 नवंबर को आईटीओ पर पीएम2.5 का स्तर 1700 माइक्रोग्राम प्रति घन मीटर और लोधी रोड पर 900 माइक्रोग्राम प्रति घन मीटर पहुंचा है। पीएम2.5 का सामान्य स्तर 60 माइक्रोग्राम प्रति घन मीटर होता है।

आरटीआई में खुलासा, डीएमआरसी ने नहीं की हिस्सेदारी

ऊर्जा ने 14 अलग-अलग विभागों में लगाई गई सूचना के अधिकार (आरटीआई) के तहत हासिल जवाब का भी खुलासा किया है। ऊर्जा के मुताबिक, एक आरटीआई के जवाब के तहत ईपीसीए ने कहा है कि ग्रेडेड रिस्पांस एक्शन प्लान (ग्रेप) के तहत 18 बैठकें की जा चुकी हैं। इनमें दिल्ली मेट्रो रेल कॉरपोरेशन (डीएमआरसी), लोक निर्माण विभाग ने बैठक में हिस्सेदारी नहीं की है। वहीं, परिवहन विभाग को यह नहीं मालूम है कि वाहनों से कितना पर्यावरणीय जुर्माना वसूला गया।

गंभीर प्रदूषण वाली इकाइयां नहीं कर रही पालन

17 गंभीर प्रदूषित श्रेणी (जीपीआई) वाली औद्योगिक इकाइयों के मामले में सीपीसीबी ने कहा है कि पूरे एनसीआर में तीन औद्योगिक इकाई नियमों का पालन कर रही हैं। इनमें से दो स्वतः बंद हो चुकी हैं और एक पूरी तरह नियमों का पालन कर रही है। हरियाणा में 161 में सिर्फ पांच, राजस्थान में 161 में सिर्फ 20, उत्तर प्रदेश में 942 में सिर्फ 25 प्रदूषण मानकों का पालन कर रही हैं।

मलेरिया, डेंगू, चिकनगुनिया

वैज्ञानिकों का दावा: मलेरिया, डेंगू, चिकनगुनिया जैसी बीमारी से मिलेगी जल्द निजात (Dainik Jagran:20190110)

<https://www.jagran.com/world/united-kingdom-disease-like-malaria-dengue-chickengunia-will-end-claim-scientists-18835825.html>

वैज्ञानिकों का दावा: मलेरिया, डेंगू, चिकनगुनिया जैसी बीमारी से मिलेगी जल्द निजात

विश्व स्वास्थ्य संगठन ने मच्छरों को दुनिया का सबसे खतरनाक कीट बताया है।

लंदन, रायटर। डेंगू और मलेरिया जैसी खतरनाक बीमारियां फैलाने वाले मच्छरों से निपटने के लिए वैज्ञानिकों ने नया तरीका खोजा है। उन्होंने मादा मच्छरों में पाए जाने वाले ऐसे प्रोटीन की खोज की है जो उनके प्रजनन के लिए बहुत महत्वपूर्ण है। इस प्रोटीन को नष्क्रिय कर उनकी प्रजनन क्षमता को नियंत्रित किया जा सकता है। यूनिवर्सिटी ऑफ एरिजोना के शोधकर्ताओं का दावा है कि इस तरीके से मधुमक्खी जैसे अन्य उपयोगी कीटों को नुकसान पहुंचाए बिना मच्छरों की संख्या कम की जा सकती है।

विश्व स्वास्थ्य संगठन ने मच्छरों को दुनिया का सबसे खतरनाक कीट बताया है। 2016 में दुनियाभर में मलेरिया से 21.6 लाख लोग संक्रमित हुए जिनमें से चार लाख 45 हजार की मौत हो गई थी। ऐसे में एरिजोना यूनिवर्सिटी की खोज बड़ी सफलता मानी जा रही है। उम्मीद जताई गई है कि इस खोज से मलेरिया, डेंगू, जीका और चिकनगुनिया जैसी बीमारियों को खत्म किया जा सकेगा।

एरिजोना यूनिवर्सिटी के प्रोफेसर रोजर मिसफील्ड ने कहा, 'वर्तमान में मौजूद दवाओं के प्रति मच्छर अपनी प्रतिरोधक क्षमता विकसित कर चुके हैं। ऐसे में उनके प्रजनन को नियंत्रित करना ही बेहतर विकल्प है। मादा मच्छर में मौजूद प्रोटीन को नष्क्रिय करने से उनके अंडे नष्ट हो जाते हैं।'

उन्होंने पांच साल के अंदर इस प्रोटीन को नष्क्रिय करने वाला कीटनाशक बना लेने की उम्मीद जताई है। इसका इस्तेमाल मच्छरदानी और स्प्रे आदि में किया जाएगा।

A 'bio-safe' way to fight mosquitoes (The Hindu:20190110)

<https://www.thehindu.com/sci-tech/health/a-bio-safe-way-to-fight-mosquitoes/article25953215.ece>

Scientists block a protein that causes the female insects to lay defective eggs

Scientists in the United States said on Tuesday they had taken a major step toward developing a “mosquito birth control” drug to curb the spread of malaria and other killer diseases blamed for hundreds of thousands of deaths a year.

Researchers at the University of Arizona said they had discovered a protein unique to female mosquitoes which is critical for their young to hatch.

When the scientists blocked the protein, the females laid eggs with defective shells causing the embryos inside to die.

The team said developing drugs which targeted the protein could provide a way to reduce mosquito populations without harming beneficial insects such as bees.

“It’s an important discovery,” said Roger Miesfeld, head of the university’s department of chemistry and biochemistry. “We’re certainly excited about it ... This gets around mosquito resistance and also has a much better chance of being bio-safe [than other methods].”

Big threat

Mosquitoes are one of the world’s deadliest insects, according to the World Health Organization (WHO) which has warned that global progress against malaria is stalling.

The disease infected around 216 million people in 2016, killing 445,000 of them, predominantly babies and young children in sub-Saharan Africa. Other diseases spread by mosquitoes include Zika, chikungunya, yellow fever, West Nile virus and dengue, which has risen 30-fold in recent decades, according to the WHO.

“Once we knock down this protein, the mosquito no longer makes viable eggs even after multiple blood feedings so ... birth control is a great way to describe it.”

He said he hoped the discovery could lead to the development of a new generation of insecticides in five years.

These could then be applied onto bed nets.

Sex Ratio

Bid to improve sex ratio: To curb sex-determination, Delhi govt to give informers, decoys Rs 50,000 (The Indian Express:20190110)

<https://indianexpress.com/article/cities/delhi/bid-to-improve-sex-ratio-to-curb-sex-determination-delhi-govt-to-give-informers-decoys-money-5531008/>

The Delhi government is working on a proposal to introduce an informer reward scheme, which has been in the pipeline for the last two years, and plans to present it in the Cabinet soon.

State appoints 68 special public prosecutors

Maharashtra mulls homicide charge for female foeticide

Aligarh, Aligarh doctor sex determination, BJP, Aligarh nursing home, sex determination, illegal pre-natal sex-determination, pre-natal sex-determination aligarh, Pre-Natal Diagnostic Technique, BJP, Rajasthan government, Aligarh DM Rishikesh Bhaskar Yashod, Bharatiya Mazdoor Sangh, BJP government, yogi adityanath, Uttar pradesh, UP news,

The Delhi government is working on a proposal to introduce an informer reward scheme, which has been in the pipeline for the last two years, and plans to present it in the Cabinet soon. (Illustration)

Informers and pregnant women acting as decoys to help raid clinics illegally performing sex-determination tests could soon be given upwards of Rs 50,000 as a reward if the raid is successful.

The Delhi government is working on a proposal to introduce an informer reward scheme, which has been in the pipeline for the last two years, and plans to present it in the Cabinet soon.

Taking a cue from neighbouring states such as Haryana and Rajasthan, the state government has prepared a plan in which cash incentives above Rs 50,000 will be given to informers helping raid labs and clinics conducting the test illegally. The move will help check female foeticide in Delhi, government officials hope.

As per data provided by the Union Health Ministry, Delhi had 869 females per 1,000 males in 2013-2015. The child sex ratio in the city saw a marginal drop from 887 females per 1,000 males in 2011-2013 to 876 in 2012-2014; and to 869 in 2013-2015.

“We have prepared a proposal to pay some cash incentives to informers and decoys, who are helping the team get hold of these illegal sex-determination labs and clinics to increase public awareness. It has been pending for a while but we will present it in the Cabinet soon,” Dr

Nutan Mundeja, Directorate General of Health Services (DGHS), Delhi government told The Indian Express. The amount will be paid once the accused has been arrested.

The Pre-Conception and Prenatal diagnostic Techniques (PC-PNDT) Act bans hospitals, nursing homes and clinics from using ultrasonography or any such technique to determine the gender of an unborn child. As per the process, officials from the department generally receive a tip-off from the informers, and a decoy is pulled in to contact the lab/doctor involved.

Once the information is confirmed, the team visits the place to catch the accused red-handed. "With this initiative, we hope more people will come forward and help the team in improving Delhi's skewed female sex ratio," added Dr Mundeja

Superbugs (The Asian Age:20190110)

<http://onlinepaper.asianage.com/article/detailpage.aspx?id=12236222>

Microbes don't mutate into savage superbugs in space

Washington, Jan. 9: Microbes stranded in the International Space Station (ISS) are not mutating into dangerous, antibiotic-resistant superbugs despite its seemingly harsh conditions, scientists have found.

While the team from Northwestern University in the US found that the bacteria isolated from the ISS did contain different genes than their Earthling counterparts, those genes did not make the bacteria more detrimental to human health.

The bacteria are instead simply responding, and perhaps evolving, to survive in a stressful environment.

"There has been a lot of speculation about radiation, microgravity and the lack of ventilation and how that might affect living organisms, including bacteria," said Erica Hartmann, who led the study published in the journal *mSystems*.

"These are stressful, harsh conditions. Does the environment select for

There has been a lot of speculation about radiation, microgravity and the lack of ventilation and how that might affect living organisms

The International Space Station (ISS) houses thousands of different microbes, which have travelled into space either on astronauts or in cargo



superbugs because they have an advantage? The answer appears to be 'no,'" Hartmann said.

As the conversation about sending travellers to Mars gets more serious, there has been an increasing interest in understanding how microbes behave in enclosed environments, researchers said.

"People will be in little capsules where they cannot open windows, go outside or circulate the air for

long periods of time. We're genuinely concerned about how this could affect microbes," said Hartmann.

The ISS houses thousands of different microbes, which have travelled into space either on astronauts or in cargo.

Researchers compared the strains of *Staphylococcus aureus* and *Bacillus cereus* on the ISS to those on Earth. Found on human skin, *S aureus* contains the tough-

to-treat MRSA strain. "Bacteria that live on skin are very happy there. Your skin is warm and has certain oils and organic chemicals that bacteria really like," said Hartmann.

"When you shed those bacteria, they find themselves living in a very different environment. A building's surface is cold and barren, which is extremely stressful for certain bacteria," he said.

To adapt to living on surfaces, the bacteria containing advantageous genes are selected for or they mutate. For those living on the ISS, these genes potentially helped the bacteria respond to stress.

"Based on genomic analysis, it looks like bacteria are adapting to live — not evolving to cause disease," said Ryan Blaustein, a postdoctoral fellow in Hartmann's laboratory.

"We didn't see anything special about antibiotic resistance in the space station's bacteria," Blaustein said.

— PTI

Dental Health (The Asian Age:20190110)

<http://onlinepaper.asianage.com/article/detailpage.aspx?id=12236227>



Some dental floss may contain toxic chemicals

Los Angeles, Jan. 9: Using some types of dental floss may contribute to elevated levels of toxic chemicals in the body which can lead to numerous health problems, a study claims.

PFAS are water- and grease-proof substances that have been linked with cancer, thyroid disease and fertility disorders, said researchers from the University of California, Berkeley School of Public Health in the US.

The findings, published in the *Journal of Exposure Science & Environmental Epidemiology (JESEE)*, provide new insight into how these chemicals end up in people's bodies and how consumers can limit their exposures by modifying their behaviour.

PFAS are used in a range of consumer products, including fast food packaging, non-stick pans, waterproof clothing, and stain-resistant carpets.

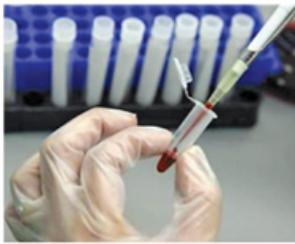
People can be exposed to the substances directly through the products they use and the food they eat.

They can also be exposed through indoor air and dust and contaminated drinking water.

Scientists are concerned about widespread exposure to PFAS in the population because the chemicals have been linked with health effects including testicular cancer, thyroid disease, high cholesterol, — *PTI*

Blood Flow (The Asian Age:20190110)

<http://onlinepaper.asianage.com/articledetailpage.aspx?id=12236217>



Biodegradable sensor monitors blood flow

Boston: Stanford scientists have developed a biodegradable, battery-free sensor that can monitor the flow of blood through an artery, helping doctors assess the success of blood vessel surgery. The device does not need to be removed and can warn a patient's doctor if there is a blockage, researchers said. "Measurement of blood flow is critical in many medical specialties, so a wireless biodegradable sensor could impact multiple fields including vascular, transplant, reconstructive and cardiac surgery," said Paige Fox, assistant professor at Stanford University in the US. "As we attempt to care for patients throughout the Bay Area, Central Valley, California and beyond, this is a technology that will allow us to extend our care without requiring face-to-face visits or tests," said Fox. Monitoring the success of surgery on blood vessels is challenging as the first sign of trouble often comes too late. By that time, the patient often needs additional surgery that carries risks similar to the original procedure. This new sensor could let doctors keep tabs on a healing vessel from afar, creating opportunities for earlier interventions. The sensor wraps snugly around the healing vessel, where blood pulsing past pushes on its inner surface. As the shape of that surface changes, it alters the sensor's capacity to store electric charge, which doctors can detect remotely from a device located near the skin but outside the body. That device solicits a reading by pinging the antenna of the sensor, similar to an ID card scanner. In the future, this device could come in the form of a stick-on patch. The researchers tested the sensor in an artificial setting where they pumped air through an artery-sized tube to mimic blood flow. — *PTI*

Feeling low increases inflammation in your body

Washington, Jan. 9: Low moods affect more than just your mental health: Feeling anxious, angry or depressed increases inflammation in the body

In a research carried out by Pennsylvania State University and led by biobehavioural health researcher Dr Jennifer Graham, it was revealed that inflammation has been linked to everything from asthma and arthritis to heart disease and even cancer. But its role in mental health is less clear.

Mental health is one of the “main causes of the overall disease burden worldwide”, with one in six people in the UK experiencing a problem like depression or anxiety in the past week, according to the Mental Health Foundation.

In the US, around one in five adults experience mental illness in any given year, National Alliance on Mental Illness statistics show.

Anxiety is a normal part of life that affects different people in different ways at different times. Whereas stress can come and go, anxiety often persists.

— Agencies

<http://onlinepaper.asianage.com/article/detailpage.aspx?id=12236226>

ADOLESCENTS EXPOSED TO CANNABIS AT RISK OF ANXIETY DISORDERS

Washington, Jan. 9: According to a recent study — conducted on laboratory animals — exposure to cannabis in adolescents could increase risk of the onset of psychiatric illnesses in adulthood.

The results have been published in the journal *Neuropharmacology*.

The work carried out by the Neuropharmacology Laboratory-NeuroPhar at Pompeu Fabra University, was led by the researchers Fernando Berrendero.

Cannabis remains the most commonly consumed illegal drug worldwide. Its regular use often begins during adolescence,

which is especially troubling because this period is crucial for the brain to mature properly through the reorganisation of the neuronal synapses.

A recent review highlighted that in recent years the perception of the risk of its consumption has diminished among the young population.

“In this study we have investigated the effects of simultaneous exposure to Δ^9 -tetrahydrocannabinol (THC), which is primarily responsible for the psychoactive properties of cannabis, and to stress,” explained Rocio Saravia and Marc Ten-Blanco, authors of the article.
— *Agencies*

HEALTH DIGEST

HOW MOTHER'S FLU AFFECTS THE NEWBORN

Washington, Jan 9: Mothers-to-be, take note! An infant faces risks when born to women with influenza, finds a recent study.

The findings have been published in the journal *Birth Defects Research*.

The study included 490 pregnant women with influenza, 1451 women without influenza with pregnancies in the same year, and 1446 pregnant women without influenza with prior year pregnancies.

Women with 2009 H1N1 influenza admitted to an intensive care unit were more likely to deliver preterm infants, low birth weight infants, and infants with low Apgar scores (a method to quickly summarise the health of newborn children against infant mortality) than women in the other groups.

— Agencies



Liver Disease (The Asian Age:20190110)

<http://onlinepaper.asianage.com/articledetailpage.aspx?id=12233352>

Alcohol is not the only reason for cirrhosis

Damage to the liver is due to indiscriminate use of antibiotics, a combination of herbal and allopathic medicines for common disorders and also the rising incidence of obesity and Non-alcoholic Fatty Liver Disease (NAFLD). All these factors combine to increase the incidence of liver cirrhosis

KANIZA GARARI

THE ASIAN AGE

Q The prevalence of NAFDL in India ranges from 9 to 32 per cent in the general population. Higher incidence is noted among obese persons, diabetics, type II diabetics and those with metabolic syndrome. These conditions are leading to advanced fibrosis and severe liver damage, explains Dr Sasidhar Reddy, Liver Transplant Surgeon at Apollo Hospitals.

Q What is the impact of obesity on the liver? Is it also one of the rising causes for the increasing cases of cirrhosis?

Obesity is rapidly overtaking alcohol as one of the major causes of fatty liver disease. NAFLD gradually progresses to Non-alcoholic Steato Hepatitis (NASH) which in turn progresses into cirrhosis. Interestingly, obesity also appears to be a significant and independent risk factor for liver cancer.

Q It is stated that over-the-counter medicines and herbal supplements also lead to the disease? What is the rate of this incidence?

Not exactly herbal medicines or supplements but digestive powders, over-the-counter vitamin powders and protein packs that are often taken, can be harmful. There is no scientific basis of any benefit from taking them. These do not come under medicines but are supplements which are found to contain heavy metals like arsenic, mercury, lead and highly volatile organic compounds that injure the liver. There is no medical advice sought before taking supplements.

In fact, herbal medicines have gained popularity as potential therapeutic agents for the prevention and treatment of NAFLD, due to their high efficacy and low side effects. There are certain studies con-

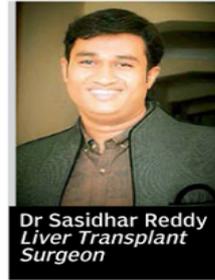
firmed their efficacy. But here some people pass off indigenous medicines as herbal medicines which is wrong.

Q There are some people who take allopathic and herbal medicines. How does the drug interaction in the body occur? What is the effect on the liver?

Allopathy and Ayurveda work on the same principles, implementation is different. Every medicine system has serious side effects. So, taking allopathy and herbal medicines together will double the side effects.

There are a lot of medicines which are toxic to the liver. Acetaminophen, nonsteroidal anti-inflammatory drugs (NSAIDs) Aspirin, ibuprofen, and naproxen sodium can cause toxic liver disease if you take too much of the drug or take it with alcohol or take it for a long time.

Q Are the antibiotics which are used for



Dr Sasidhar Reddy
Liver Transplant Surgeon

such as amoxicillin-clavulanate have shown to have a delayed onset on liver injury and recently cefazolin has been found to lead to liver injury 1-3 weeks after exposure of a single infusion. The other extreme is the nature of nitrofurantoin-induced liver injury, which can occur after a few years of treatment and lead to acute liver failure (ALF) or autoimmune-like reaction.

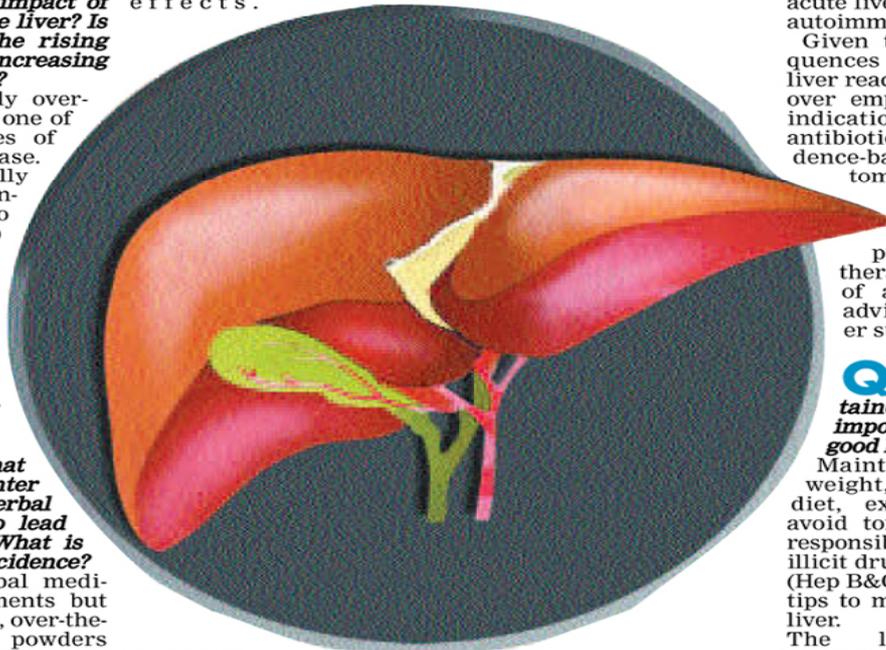
Given the severe consequences of the adverse liver reactions, it cannot be over emphasised that the indication for different antibiotics should be evidence-based and symptoms and signs of liver injury from the drugs should lead to prompt cessation of therapy. Regular usage of antibiotics is not advised without proper supervision.

Q How can liver health be maintained? Why is it important to maintain good health of the liver?

Maintain a healthy weight, eat a balanced diet, exercise regularly, avoid toxins, use alcohol responsibly, avoid the use of illicit drugs, get vaccinated (Hep B&C). These are a few tips to maintain a healthy liver.

The liver primarily processes nutrients from food, makes bile, removes toxins from the body and builds proteins. It's easy to see how the inflammation of the liver, or

hepatitis, interferes with these important functions and can lead to poor health. So, maintaining good health of the liver is important for an overall healthy life.



Moreover, a person is taking a double dose. Anything at higher dose is very serious and the toxins metabolise in the liver.

Q There are many people suffering from co-morbid conditions like hypertension and diabetes. They are on constant medication. Are there medicines which have side-effects that can cause cirrhosis due to the use of one type of chemical for a long time?

In diabetes, the medicines do not cause any effect on the liver, it's the disease that causes injury to the liver in the long term.

infectious diseases also one of the reasons? There are people who regularly take antibiotics, so will they suffer in the long run?

Antibiotics are a common cause of drug-induced liver injury. Most cases of antibiotic-induced liver injury are idiosyncratic, unpredictable and largely dose-dependent. Some widely used antibiotics

Antibiotics are a common cause of drug-induced liver injury. Most cases of antibiotic-induced liver injury are idiosyncratic, unpredictable and largely dose-dependent

Alzheimer's disease

Nutrient in mother's diet may help fight Alzheimer's in offspring (Medical News Today:20190110)

<https://www.medicalnewstoday.com/articles/324139.php>

Recent research suggests that a maternal diet that is high in an essential nutrient can reduce the impact of Alzheimer's disease on future generations.

Meat, fish, eggs, and dairy are the main dietary sources of choline.

In the study, scientists bred mice that were genetically predisposed to develop hallmarks of Alzheimer's disease from females whose diet contained added choline.

The descendants of these females developed fewer disease-associated brain changes and had improved memory skills compared with those of non-supplemented mice.

The researchers, who are from Arizona State University (ASU) in Tempe and the Translational Genomics Research Institute in Phoenix, AZ, bred two generations of mice from the choline-supplemented females.

They found that the protective effect of "maternal choline supplementation" persisted across multiple generations, even though the descendants' diets were not enriched with choline.

The journal *Molecular Psychiatry* has now published a paper on the study.

Choline: An essential nutrient

Choline is an essential nutrient that the body needs for many functions, including early brain development and the preservation of cell structure.

While the human body can make some of the choline that it needs, it has to obtain the rest from dietary sources.

In the United States, animal products such as meat, fish, eggs, and dairy are the primary sources of choline in the diet. Other sources include soybeans, cruciferous vegetables, nuts, whole grains, and seeds.

"Choline deficits," says lead study author Dr. Ramon Velazquez of the Biodesign Institute at ASU, "are associated with failure in developing fetuses to fully meet expected milestones like walking and babbling."

"But, we show that even if you have the recommended amount, supplementing with more in a mouse model gives even greater benefit," he adds.

Alzheimer's disease features and risk factors

Alzheimer's disease is the main cause of dementia, a condition that gradually destroys a person's ability to think, remember, make decisions, and take care of themselves. It can also alter mood and reduce motor control.

According to the World Health Organization (WHO), there are around 50 million people worldwide with dementia, of whom around 60–70 percent have Alzheimer's. Experts predict that this number will more than treble by 2050.

Men who eat lots of fruits and vegetables have less memory loss

A long study of thousands of men has linked a diet rich in leafy greens, certain vegetables, berries, and orange juice to reduced memory loss.

In the U.S., where about 5.7 million people have Alzheimer's, the national annual cost of dementia is about \$277 billion. These numbers could increase to 14 million people and \$1.1 trillion by 2050.

Of the top 10 causes of death in the U.S., Alzheimer's disease is the only one for which there is currently no means to slow, prevent, or stop it.

While age is the most significant risk factor for Alzheimer's disease, there is evidence that other factors, such as genetics and lifestyle, also play a role.

Among the lifestyle factors, studies suggest that diet can have a significant influence on the risk of cognitive decline. Research also shows that the effect of diet can last for generations and implies that this occurs through silencing of genes in the unborn.

The distinguishing features of Alzheimer's disease include wasting of tissue and the development of beta-amyloid protein plaques in the brain.

Effects of choline on the brain

In their study paper, the investigators explain that the risk of developing Alzheimer's disease doubles when there are high levels of an amino acid called homocysteine in the brain. This substance contributes to the deterioration of brain tissue and the development of beta-amyloid plaques.

Choline, however, can slow down this decline because it converts homocysteine into a beneficial substance called methionine.

Another potentially beneficial effect of choline is that it reduces the activity of microglia cells. These cells help clear waste material in the brain. However, in Alzheimer's disease, they can become hyperactive and cause inflammation that kills brain cells.

To explore the mechanism of maternal choline supplementation, the team examined hippocampal brain tissue in the descendants of the female mice. The hippocampus is a brain region that plays an important role in forming memories.

The examination revealed that maternal choline supplementation reduced microglia activation and beta-amyloid protein and "improved cognitive deficits" in the first- and second-generation offspring.

"Mechanistically," note the authors, "these changes were linked to a reduction in brain [homocysteine] levels in both generations."

Further genetic analysis of the hippocampal tissue revealed that choline supplementation in mothers "significantly changed the expression of 27 genes" in the descendants. There is a known association between many of these genes and inflammation and brain cell death.

"No one has ever shown transgenerational benefits of choline supplementation. That's what is novel about our work."

Dr. Ramon Velazquez

Cancer

Cancer: A new 'drug sponge' may reduce chemo's toxic effects (Medical News Today:20190110)

<https://www.medicalnewstoday.com/articles/324140.php>

Researchers have developed an innovative, personalized absorber that can "catch" toxic chemotherapy drugs when they "leak out" of a treated organ. This could help reduce the adverse side effects of these cancer treatments.

A newly designed 'drug sponge' could intercept chemotherapy agents before they reach and affect healthy tissue.

A team of researchers from institutions across the United States — including the University of California (UC), Berkeley, and the University of California, San Francisco (UCSF) — has recently developed a tiny device akin to a sponge, which is set to absorb chemotherapy agents after they have reached their target.

The aim of the absorber is to minimize the toxic side effects of chemotherapy drugs, which, although they have a potent effect against cancer tumors, also attack healthy organs and tissue and can impair their function.

The device is 3-D printed, so it can perfectly fit the vein of any individual receiving a chemotherapy treatment. Its absorbent polymer coating is able to "soak up" the toxic agents after they have passed through the organ that the treatment is targeting.

So far, the researchers have tested this new device as an aid to chemotherapy for liver cancer, as the therapeutic drugs travel to the liver in the bloodstream, which can increase the risk of toxic side effects.

The researchers have reported their experiments and findings in a study paper that has appeared today in the journal ACS Central Science.

A device that shows promise

To insert the innovative absorber, "Surgeons snake a wire into the bloodstream and place the sponge like a stent, and just leave it in for the amount of time you give chemotherapy, perhaps a few hours," explains Prof. Nitash Balsara, from the UC Berkeley.

The researchers tested the absorber in a pig model. They injected a chemotherapy drug for the treatment of liver cancer and found that, on average, the device was able to intercept 64 percent of the drug.

"We are developing this around liver cancer because it is a big public health threat — there are tens of thousands of new cases every year — and we already treat liver cancer using intra-arterial chemotherapy," explains study co-author Prof. Steven Hetts.

However, he adds that "you could use this sort of approach for any tumor or any disease that is confined to an organ, and you want to absorb the drug on the venous side before it can distribute and cause side effects elsewhere in the body."

In the future, the researchers aim to use this technique in the treatment of cancerous kidney tumors and brain tumors.

Using a 'petroleum refining concept'

At the UCSF Mission Bay Hospitals, Prof. Hetts already uses a safer way of delivering chemotherapy drugs. Rather than simply injecting the drugs into the bloodstream, he inserts catheters into the veins to deliver them straight to the tumor site.

This approach already helps lower the risk of these potent drugs infiltrating and affecting healthy tissue. However, Prof. Hetts explains that more than half of the injected drug dose still tends to "leak out" of the targeted organ and reach other parts of the body.

New breath test for cancer currently under trial

Could this experimental breath test help diagnose cancer in its early stages?

The innovative absorber, which includes an ionic polymer that can effectively intercept the chemotherapy agent doxorubicin, would get rid of this problem. The concept for this device, the research team explains, actually comes from industrial refining processes.

"An absorber is a standard chemical engineering concept," says Prof. Balsara. "Absorbers are used in petroleum refining to remove unwanted chemicals, such as sulfur. Literally, we've taken the concept out of petroleum refining and applied it to chemotherapy," he notes.

'One of the shortest pathways to patients'

Although the personalized absorber has so far performed well in the healthy pig model, the researchers stress that it is extremely important to validate it in clinical trials with human participants who are actually dealing with cancer.

"This is a first level in vivo validation that yes, this device will bind up drug in the bloodstream. But extensive animal testing is not the next path; the next path is getting conditional approval from [the US Food and Drug Administration (FDA)] to do first-in-human studies, because it is much more realistic to test these in people who have cancer as opposed to continuing to test in young pigs who have otherwise healthy livers," Prof. Hetts emphasizes.

Nevertheless, the researchers are confident that their innovative absorber is promising. They believe that it will not only be less invasive than other chemotherapy-filtering methods already under trial but is likely to perform better than them.

"There is a lot of opportunity to develop less-invasive devices that will bind up the drug in a gentler manner. We think this is a generally applicable concept," says Prof. Hetts.

"Because it is a temporary device, there is a lower bar in terms of approval by the FDA. I think this type of chemofilter is one of the shortest pathways to patients."

Prof. Steven Hetts

Stem Cell Research

'Coaxing' stem cells to form new bone tissue (Medical News Today:20190110)

<https://www.medicalnewstoday.com/articles/324133.php>

New research has identified a possible way to manipulate certain stem cells to generate new bone tissue. The results of this investigation could vastly improve the outcome for people with skeletal injuries or conditions such as osteoporosis.

A new study looks at how to encourage stem cells to form new bone tissue rather than other types of tissue.

Stem cells are undifferentiated cells that have the potential to specialize and undertake any function.

Much recent research has focused on how best to use stem cells for therapeutic purposes. Researchers are particularly interested in how to manipulate them to create new tissue that can successfully replace damaged sets of cells or those that are no longer functional.

In a new study from the Johns Hopkins University School of Medicine in Baltimore, MD, Dr. Aaron James and his team have looked into the mechanisms that allow certain types of stem cell, which are known as "perivascular stem cells," to form new bone tissue.

These stem cells tend to turn into either fat tissue or bone tissue. To date, it has been unclear what, exactly, determines their fate.

"Our bones have a limited pool of stem cells to draw from to create new bone. If we could coax these cells toward a bone cell fate and away from fat, it would be a great advancement in our ability to promote bone health and healing."

Dr. Aaron James

The investigators conducted their research in a rat model as well as in human cell cultures, and they report their findings in the journal *Scientific Reports*.

The protein that drives cell fate

Previous studies that Dr. James conducted have suggested that a particular signaling protein called WISP-1 is likely to drive the fate of perivascular stem cells by "telling" them whether to form fat or bone tissue.

In the current study, the researchers sought to prove WISP-1's role in determining stem cell fate by genetically modifying a set of human stem cells to stop them from producing this protein.

When they compared gene activity in the engineered stem cells with gene activity in cells that still produced WISP-1, the researchers confirmed that the protein played an important role. In the cells without WISP-1, four of the genes responsible for fat formation had a 50–200 percent higher level of activity than they did in the cells continuing to produce WISP-1.

This also indicated that the correct dosage of this signaling protein could drive the stem cells to form bone tissue instead of fat tissue.

As expected, when the researchers then modified stem cells to increase WISP-1 production, they noticed that three of the genes that stimulate bone tissue growth became twice as active compared with those in stem cells with normal levels of the signaling protein.

At the same time, the activity of genes that stimulated the growth of fat tissue — such as peroxisome proliferator-activated receptor gamma (PPARG) — was 42 percent lower in stem cells with a WISP-1 boost, and this decrease occurred in favor of genes that determine bone tissue growth.

Stem cell intervention shows promise

In the next stage of the study, the scientists used a rat model to determine whether WISP-1 could boost bone healing in spinal fusion, a type of medical intervention that requires joining two or more vertebrae (spine bones) to form a single bone.

The therapeutic use of spinal fusion is to improve back pain or spinal stability in the context of various conditions that affect the spine, such as scoliosis.

Implants 'made of your own cells' could end back pain

Researchers are aiming to use a person's own cells to grow intervertebral discs in the lab.

Usually, "Such a procedure requires a massive amount of new bone cells," explains Dr. James. "If we could direct bone cell creation at the site of the fusion, we could help patients recover more quickly and reduce the risk of complications," he notes.

In the current study, the researchers injected human stem cells that had active WISP-1 into rats. They did this between the vertebrae that were due to become joined as part of the fusion procedure.

After 4 weeks, Dr. James and his team found that the animals still displayed high levels of WISP-1 in their spinal tissue. Moreover, new bone tissue was already forming in the right places, allowing the vertebrae to become "welded."

Conversely, rats that had received the same surgical intervention but without the WISP-1 boost did not present any vertebral fusion during this same period.

"We hope our findings will advance the development of cellular therapies to promote bone formation after surgeries like this one and for other skeletal injuries and diseases, such as broken bones and osteoporosis," Dr. James declares.

In the future, the research team also aims to find out whether reducing WISP-1 levels in stem cells could lead them to form fat tissue, which could help promote faster wound healing.

Diet/ Nutrition

Does this common food additive stop us exercising? (Medical News Today:20190110)

<https://www.medicalnewstoday.com/articles/324131.php>

A two-part study that examined both mice and humans revealed a strong link between inorganic phosphate, a food additive that is prevalent in the "Western diet," and a lack of physical activity.

Inorganic phosphate is present in processed meat and cola.

According to the latest statistics from the United States Department of Health and Human Services, less than 5 percent of the country's adult population engage in 30 minutes of physical activity every day.

Over 80 percent of U.S. adults do not follow the recommended guidelines for aerobic exercise and resistance training.

Also, only 1 in 3 people manage to exercise for the recommended amount every week.

Why are U.S. adults so sedentary? New research may now have found the culprit in a food additive present in meat, soda, and some processed foods: inorganic phosphate.

Scientists at the University of Texas (UT) Southwestern Medical Center in Dallas examined the link between inorganic phosphate and sedentarism in both mice and humans.

Phosphate is a particle derived from phosphorus, a mineral that the body needs to "build and repair bones and teeth, help nerves function, and make muscles contract."

The researchers — led by Dr. Wanpen Vongpatanasin, a professor of medicine at UT Southwestern Medical Center — published their results in the journal *Circulation*.

Phosphate as a 'health risk'

Manufacturers add phosphate to food in order to keep it fresh for longer and to enhance its flavor. The additive is most likely to be present in "processed meat, ham, sausages, canned fish, baked goods, cola drinks, and other soft drinks."

Normally, kidneys control how much phosphate there is in the blood, and they help filter out the excess phosphate in the urine.

The fitness placebo: Can you really think yourself fit?

Just believing that you are physically inactive could shave years off your life, according to new research.

However, impaired kidneys may struggle to flush out excessive phosphate, which is why scientists have previously called the additive a "health risk" and called for labeling the amount of added phosphate in foods.

Some studies have also shown that inorganic phosphate correlates with a higher risk of mortality among people with kidney disease.

Meanwhile, newer studies have found that even in the general population, excess phosphate is linked with a higher risk of cardiovascular death as well as death from all causes.

How phosphate affects physical activity

For their study, Dr. Vongpatanasin and colleagues fed two groups of healthy mice similar diets; but, they gave one group of mice extra phosphate to a degree that is equivalent to that which U.S. adults consume.

Up to 25 percent of U.S. adults regularly consume between three and four times more phosphate than the recommended dose, say the researchers.

In the mouse experiment, 12 weeks of following a phosphate-enriched diet correlated with less time on the treadmill and lower cardiac fitness in the rodents.

The mice that consumed additional phosphate had an impaired fat-burning metabolism. Also, the researchers found that 5,000 genes that help process fat and aid cell metabolism were altered in these mice.

In the second part of the study, Dr. Vongpatanasin and team examined data on over 1,600 healthy people. The participants had worn fitness trackers for 7 days, which allowed the scientists to monitor their exercise levels.

They found that higher levels of phosphate in the blood correlated with more sedentarism and less time "spent in moderate to vigorous physical activity."

Dr. Vongpatanasin comments on the significance of the team's results, saying, "I think it might be about time for us to push the food industry to put this on labels so that we can see how much phosphate goes into our food."

"[B]ut this is just the beginning," notes Dr. Vongpatanasin, who concludes that more research is necessary to make this goal a reality.