



DAILY NEWS BULLETIN

LEADING HEALTH, POPULATION AND FAMILY WELFARE STORIES OF THE DAY
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कैंसर

कैंसर की जल्द जांच में मददगार होगी नई ऑप्टिकल इमेजिंग (Dainik Jagran:20190312)

https://epaper.jagran.com/epaper/article-12-Mar-2019-edition-delhi-city-page_12-10110-9712-4.html

कैंसर की जांच में ऑप्टिकल इमेजिंग की अहम भूमिका रहती है। हालांकि, इसकी सीमाओं के कारण गर्भाशय के कैंसर व कुछ अन्य कैंसर की जांच शुरुआती स्तर पर नहीं हो पाती है। इनका पता प्रायः आखिरी स्टेज में पहुंचकर ही हो पाता है। भारतवंशी समेत वैज्ञानिकों के दल ने इस चुनौती से निपटने की दिशा में बड़ी कामयाबी हासिल की है। वैज्ञानिकों ने ऐसा ऑप्टिकल इमेजिंग सिस्टम तैयार किया है, जो बेहद सूक्ष्म और ऊतकों (टिशू) की गहराई में बने ट्यूमर का पता लगाने में भी सक्षम है। मैसाचुसेट्स इंस्टीट्यूट ऑफ टेक्नोलॉजी (एमआइटी) के पोस्टडॉक्टरल फेलो नीलकंठ बर्धन इसके अग्रणी शोधकर्ताओं में शामिल रहे। प्रेटर

ऑपरेशन के बाद निशान कम रखने में मदद करेगा नया डिवाइस: कॉस्मेटिक सर्जरी के बाद शरीर पर टांके का निशान रह जाना सबसे बड़ी चुनौती होती है। अमेरिका की बिंघमटन यूनिवर्सिटी के शोधकर्ताओं ने एक ऐसा उपकरण तैयार किया है, जो इस बात में डॉक्टरों की मदद करेगा कि सर्जरी के बाद निशान न्यूनतम दिखें। वैज्ञानिकों ने बताया कि मनुष्य की त्वचा परत दर परत बनी होती है। इसीलिए त्वचा में हल्की लकीरें बन जाती हैं। इसी तरह हमारी त्वचा को किसी एक दिशा में ज्यादा आसानी से खींचा जा सकता है। - प्रेटर

भारत में उपलब्ध नहीं जांच फिर भी 70% का इलाज

नई दिल्ली | हेमवती नंदन राजौरा

एम्स के कैंसर विभाग के डॉक्टरों ने अस्पताल में ऊतकों और हड्डियों के दुर्लभ कैंसर डीएफएसपी के 70 फीसदी मरीजों को देश में बिना आण्विक जांच की उपलब्धता के सही इलाज किया। उनके इस शोध को कैंसर की मशहूर पत्रिका जर्नल ऑफ ग्लोबल ओनकोलॉजी ने जगह दी है।

कैंसर विभाग के प्रोफेसर डॉक्टर समीर रस्तोगी का कहना है कि डीएफएसपी एक ऐसा दुर्लभ कैंसर है जिसका ट्यूमर तेजी से फैलता है। यह कैंसर हड्डियों और ऊतकों में पाया जाता है। इसकी भारत में अभी तक आण्विक जांच उपलब्ध नहीं है। उन्होंने बताया कि इस जांच से ऊतक, खून या शरीर

दुर्लभ बीमारी

डॉक्टर समीर के मुताबिक यह इतना दुर्लभ है कि कैंसर के सिर्फ 0.2 फीसदी मामले ही यह होता है। जांच उपलब्ध न होने पर हड्डियों और ऊतकों के कैंसरों की जांच करने वाले विशेषज्ञ डॉक्टर ही इसका पता लगा पाते हैं। बायोप्सी के बाद मरीजों को प्राथमिक तौर पर डीएफएसपी का इलाज शुरू किया। इसके लिए सात मरीज इसके संदिग्ध पाए गए। इनको इमेटिनिब दवा दी गई। इनमें 71.4 फीसदी मरीजों का इलाज सही रहा।

के किसी हिस्से में उन जीन और प्रोटीन का पता लगाया जाता है जिसकी वजह से ये बीमारी होती है। इसके जरिए किसी प्रकार के कैंसर का पता लगाया जाता है।

http://epaper.livehindustan.com/imageview_151781_102956532_4_1_12-03-2019_i_15.pagezoomsinwindows.php

कैंसर की विशेष पॉलिसी से गंभीर बीमारियों का प्लान बेहतर



सलाह

नई दिल्ली | हिंदी

बदलती जीवन शैली के कारण कैंसर जैसी गंभीर बीमारियां तेजी से बढ़ी है। इसके लिए आम तौर पर लोग कैंसर से जुड़ी बीमा पॉलिसी ले लेते हैं।

बीमा कंपनियां कैंसर प्लान भी ऑफर करती हैं और 20-22 से ज्यादा बीमारियों से सुरक्षा देने वाला क्रिटिकल इनलेस प्लान भी देती हैं। विशेषज्ञों के मुताबिक, कैंसर की

किसी विशेष पॉलिसी से बेहतर क्रिटिकल इनलेस प्लान है। यह कैंसर पॉलिसी से 20 फीसदी तक महंगा जरूर होता है, लेकिन व्यापक कवरेज देता है। इसकी प्रतीक्षा अवधि पॉलिसी जारी होने के 90 दिनों के बाद होता है।

तेजी से बढ़ रहा कैंसर: नेशनल इंस्टीट्यूट ऑफ कैंसर प्रोटेक्शन एंड रिसर्च के मुताबिक, वर्तमान में देश में कैंसर मरीजों की संख्या 22.5 लाख है। यह रोग किसी तेजी से बढ़ रहा है इसका अंदाजा इसी से लगाया जा सकता है कि हर साल 11.5 लाख लोग कैंसर रोग से ग्रसित हो रहे हैं।

20 से 25 लाख का प्लान खरीदना चाहिए इलाज की लागत को देखते हुए

कैंसर बीमा पॉलिसी की मुख्य बातें

साधारण कैंसर पॉलिसी मुख्य रूप से कैंसर के शुरुआती इलाज खर्च को देखते हुए प्लान किया गया है। इस प्लान के तहत बीमा धारक को इलाज के दौरान एकमुश्त राशि का भुगतान किया जाता है। यह बीमारी के शुरुआती चरण में सिर्फ 20 से 30 फीसदी खर्च की गई राशि का वहन करता है।

50 लाख तक का कवर देती हैं बीमा कंपनियां कैंसर प्लान पर

क्रिटिकल इनलेस प्लान क्यों बेहतर

कैंसर जैसी गंभीर बीमारी का पता हमेशा दूसरे या तीसरे स्टेज में होता है। इस हालात में क्रिटिकल इनलेस प्लान 100 फीसदी खर्च का वहन करता है। दूसरा बड़ा फायदा है कि इसके अंतर्गत 30 से 35 गंभीर बीमारियां भी कवर होती हैं।

क्या कवर होता है?

क्रिटिकल इनलेस प्लान में शामिल बीमारियों की संख्या हर कंपनी के मामले में अलग-अलग हो सकती है। हालांकि, इसमें कैंसर, स्ट्रोक, हार्ट अटैक, अंग प्रत्यारोपण, किडनी फेलियर, हार्ट वॉल्व आदि कवर होता है।

बेसिक प्लान काफी नहीं

आम तौर पर लोग बेसिक हेल्थ इन्श्योरेंस प्लान 4 या 5 लाख रुपये का लेते हैं। लेकिन गंभीर बीमारी जैसे कैंसर या किडनी फेल होने पर इलाज के लिए इतनी रकम पर्याप्त साबित नहीं होती है। इसलिए बेसिक हेल्थ कवर के साथ क्रिटिकल इनलेस प्लान भी लेना चाहिए।

उम्र 40 के पार तो गंभीरता से करें विचार

अगर आपकी उम्र 40 वर्ष हो गई है तो क्रिटिकल प्लान लेने पर गंभीरता से विचार करना चाहिए। इसका कारण यह है कि 40 वर्ष की उम्र के बाद गंभीर बीमारियों का खतरा बढ़ जाता है।



<https://epaper.bhaskar.com/detail/201634/03120240000126/cph/12032019/194/image/>

भास्कर खास • नारी शक्ति शब्द को ज्यादा सर्च करने वाले राज्यों में यूपी, महाराष्ट्र, मप्र और राजस्थान जिन 4 राज्यों में महिलाओं के खिलाफ सबसे ज्यादा अपराध दर्ज, वहां गूगल पर सबसे ज्यादा सर्च हुआ 'नारी शक्ति' शब्द

भास्कर न्यूज | नई दिल्ली

ऑक्सफोर्ड डिक्शनरी ने 'नारी शक्ति' शब्द को 2018 का हिंदी शब्द चुनकर नई पहचान दी है।



27 जनवरी को यह शब्द विधिवत रूप से डिक्शनरी में शामिल कर लिया गया। यह पहचान दिलाने में यूपी, महाराष्ट्र,

राजस्थान और मध्यप्रदेश ने सबसे ज्यादा योगदान दिया। गूगल ट्रेंड्स के मुताबिक इन राज्यों में नारी शक्ति शब्द गूगल पर सबसे ज्यादा सर्च किया गया। लेकिन इन राज्यों में ही महिलाओं के खिलाफ अपराध से जुड़े सबसे ज्यादा मामले दर्ज किए गए हैं। दरअसल, 'नारी शक्ति' शब्द को चुने जाने के पीछे दिलचस्प कहानी है। ऑक्सफोर्ड यूनिवर्सिटी प्रेस की डिजिटल मार्केटिंग हेड स्वाति नंदा बताती

नारी शक्ति पर कविता सबसे ज्यादा सर्च की गई...

इंटरनेट पर नारी शक्ति पर कविता सबसे ज्यादा सर्च की गई। इसके अलावा सरकार द्वारा शुरू किया गया नारी शक्ति पुरस्कार सबसे ज्यादा सर्च किए जाने वाले शब्दों में दूसरे नंबर पर रहा। नारी शक्ति पर निबंध तीसरे स्थान पर रहा। निराशाजनक बात यह है कि वुर्मस डे करीब आते ही नारी शक्ति शब्द सबसे ज्यादा सर्च किया जाता है।

महिलाओं के खिलाफ दर्ज अपराध और गूगल सर्च

राज्य	दर्ज अपराध	नारी शक्ति सर्च
यूपी	49,262	52%
राजस्थान	27,422	51%
मध्यप्रदेश	26,604	57%
महाराष्ट्र	31,388	26%

स्रोत: एनसीआरबी, गूगल ट्रेंड्स

हैं कि कई शब्द नारी शक्ति की तुलना में गूगल पर ज्यादा सर्च किए गए। शेष पेज-6 पर

<https://epaper.bhaskar.com/detail/201634/03120240020954/cph/12032019/194/image/>

राजनातिक प्रशासन चला सकगा।

जापान के मुकाबले भारत में जल्दी बूढ़ा महसूस करेंगे

नई दिल्ली | भारतीय लोग जापानियों के मुकाबले जल्दी बूढ़ा महसूस करते हैं। द लांसेट के मुताबिक 65 की उम्र में सेहत संबंधी दिक्कतें झेलने में सबसे अधिक व कम उम्र के लोगों में 30 साल का अंतराल देशों को अलग करता है। जापान में 76 और पापुआ न्यू गिनी के 46 साल के लोगों में स्वास्थ्य समस्याओं का स्तर समान है।

<http://onlinepaper.asianage.com/articledetailpage.aspx?id=12602317>

HEALTH | MATTERS ■ Analysis finds Indians experience health problems well before they turn 60

Indians feel older than Japanese, says study

Washington, Mar 11: People living in India experience the health problems associated with ageing at an early stage than those living in Japan or Switzerland, according to a first-of-its-kind study published in *The Lancet Public Health*.

Researchers at the University of Washington in the US and colleagues found that a 30-year gap separates countries with the highest and lowest ages at which people experience the health problems of a 65-year-old.

They found 76-year-olds in Japan and Switzerland, and 46-year-olds in Papua

New Guinea have the same level of age-related health problems as an "average" person aged 65.

The analysis also found that people living in India experience the similar health problems well before they turn 60.

"These disparate findings show that increased life expectancy at older ages can either be an opportunity or a threat to the overall welfare of populations, depending on the ageing-related health problems the population experiences regardless of chronological age," said Angela Y. Chang, lead author of the study and

THE BIG GAP

■ Researchers found a 30-year gap separates countries with the highest and lowest ages at which people experi-



ence health problems of a 65-yr-old.

postdoctoral fellow at the University of Washington in the US.

"Age-related health problems can lead to early retirement, a smaller

workforce, and higher health spending. Government leaders and other stakeholders influencing health systems need to consider when

■ 76-year-olds in Japan and Switzerland, and 46-year-olds in Papua New Guinea have the same level of age-related health problems as an 'average' person aged 65.

people begin suffering the negative effects of ageing," Chang said in a statement. These negative effects include impaired functions and loss of physical, mental, and cognitive abilities resulting from the 92 conditions analysed, five of which are communicable and 81 non-communicable, along with six injuries.

The study is the first of its kind, according to Chang. Where traditional metrics of ageing examine increased longevity, this study explores both chronological age and the pace at which ageing contributes to health deterio-

ration.

The study uses estimates from the Global Burden of Disease study (GBD).

The researchers measured "age-related disease burden" by aggregating all disability-adjusted life years (DALYs), a measurement of loss of healthy life, related to the 92 diseases.

Although most countries have similar rankings between age-standardised, age related and all-burden rates, countries such as Ethiopia, Nigeria, and South Africa perform better in age-related disease burden relative to all burden. -PTI



कम सोने के कारण कई गंभीर बीमारियां होने का बढ़ जाता है खतरा

दो दिन में पूरी नहीं होती अधूरी नींद



सेहत

नई दिल्ली | हिंदी

अगर आप पूरे हफ्ते की नींद को सप्ताह के अंतिम दो दिनों में पूरा करने की सोच रहे हैं तो आपको इस पर दोबारा विचार करना पड़ेगा। 24 घंटे काम करने के बढ़ते प्रचलन से युवाओं में सप्ताहांत में दिनभर सो कर नींद पूरी करने की प्रवृत्ति देखी जा रही है।

एक शोध के अनुसार इस वजह से युवाओं में देर रात खाने, वजन बढ़ने और इंसुलिन के प्रति घटती शारीरिक प्रतिक्रिया जैसी समस्याएं बढ़ रही हैं। कर्नेट बायोलाजी नामक जर्नल में यह शोध प्रकाशित किया गया है।

वार्शिंगटन यूनिवर्सिटी के शोधकर्ता पॉल शॉ के अनुसार पूरे हफ्ते नींद को हो रहे नुकसान की भरपाई आप सप्ताहांत में ज्यादा देर सो कर नहीं कर सकते। कई दशकों से वैज्ञानिकों का



मानना है कि नींद पूरी न होने से व्यक्ति की पाचन प्रक्रिया को नुकसान होता है उसमें व्यावहारिक व मनोवैज्ञानिक समस्याएं पैदा हो सकती हैं। युवाओं में मोटापा, टाइप-2 डायबिटीज के बढ़ने की संभावना है। 2014 में 35 फीसदी अमेरिकियों में नींद की कमी पाई गई। डाटा के अनुसार 35 फीसदी युवा सात घंटे से कम नींद लेते हैं।

सप्ताहांत में ज्यादा नींद लेने से सप्ताहभर नींद को हुए नुकसान की

भरपाई की जा सकती है या नहीं इस बात को लेकर ज्यादा तथ्य मौजूद नहीं थे। यूनिवर्सिटी ऑफ कोलोराडो बाउलडर के मनोविज्ञानी क्रिस्टोफर डीपनर, उनके सहयोगियों ने 20-29 साल के युवाओं की तीन टीमों पर परीक्षण किया।

दो हफ्ते तक इन युवाओं के सोने के पैटर्न की समीक्षा की गई। एक ग्रुप ने हर रात को आठ घंटे की नींद पूरी की और दूसरे ग्रुप ने हर रात पांच घंटे की नींद ली। तीसरे ग्रुप को पांच घंटे हफ्ते में और

चिंताजनक

08 घंटे की नींद हर दिन लेनी चाहिए अच्छे स्वास्थ्य के लिए

01 घंटे ही ज्यादा सो पाते हैं सप्ताहांत में नींद पूरी करने वाले

35 फीसदी अमेरिकियों में नींद की कमी देखी गई

वजन बढ़ता रहेगा

सप्ताहांत में सोने वाले लोगों में भूख को नियंत्रित रखने वाले लेपटिन हार्मोन की कमी देखी गई। इस कारण उन्होंने देर रात जंक फूड खाया और उनका वजन बढ़ गया। वहीं, इंसुलिन को लेकर शरीर की प्रतिक्रिया भी 27 फीसदी तक कम देखी गई।

जितनी मर्जी उतना सप्ताहांत में सोने दिया गया।

शोधकर्ताओं ने पाया कि सप्ताहांत में सोने वाले लोग शुक्रवार और शनिवार रात 1 बजे तक जगे और दूसरे दिन 11 बजे तक सोते रहे। फिर वह रविवार देर रात तक जगे। सिर्फ छह घंटे की नींद पूरी कर नए हफ्ते की शुरुआत की। शोध में पाया कि तीसरी टीम शुक्रवार से रविवार तक प्राकृतिक नींद के चक्र से सिर्फ 1.1 घंटे ही ज्यादा सो सकी।

Bone-marrow Donor

A gritty mom battles social odds to be India's first woman bone-marrow donor (The Tribune:20190312)

<https://www.tribuneindia.com/news/nation/a-gritty-mom-battles-social-odds-to-be-india-s-first-woman-bone-marrow-donor/741446.html>

She is not only a mother, but a gritty woman who pulled out all stops to become the country's first female bone marrow donor to give new lease of life to an ailing three-month-old infant.

It took a lot of courage for the 26-year-old Masilamani, hailing from a nondescript village of Coimbatore in Tamil Nadu, to come out and donate her bone marrow to save a baby from New Delhi.

Masilamani, the mother of a thalassemia major girl, was in the city on a personal visit.

She is ecstatic at what she has achieved recently.

"I believe I'm blessed. I managed to break away from the misconceptions of our society to save a child. I feel like I am the mother of the child. I would say it is my child too as now I have given him a second chance to live. I pray to the almighty that he must recover fast and should never suffer again. He must be healthy," Masilamani told PTI.

Talking about her fight against social myths when she decided to go ahead with the bone marrow donation, Masilamani recalls, "My village is a very remote one at the foot of the Velliangiri hills with very less exposure to any modern amenities. There are very few educated people there.

Therefore, anything new, be it a thing or a thought, is always resisted in the village."

Hailing from Mudhalipalayam, a hamlet in Coimbatore, Masilamani got married at the age of 20 to R Kaviarasan, a fabricator.

"Within a year, my daughter was born and a few months later she was diagnosed with thalassemia major. We both (husband and wife) have our swabs to identify human leukocyte antigen (HLA) to check if we could be of any match to our daughter at DATRI - the blood stem cells donor registry. There I found a match to become a donor for a baby boy."

Excited but confused, Masilamani shared the piece of information with her husband who agreed that it was a great opportunity to help another parent in distress.

But we could not take a decision so easily. My mother-in-law and sister-in-law resisted saying if something went wrong, who will take care of your children?

"The in-laws were all the more worried as I have a daughter with a chronic illness. Even my relatives and neighbours advised me not to go ahead with the donation as there could be side effects in the future, if not immediately. I was confused," Masilamani said.

Masilamani, who gave birth to a boy three years later, sought expert advice on bone marrow donation.

"My doubts were cleared and I was glad to know there are no short-term and long-term side effects. I could finally convince my family and take a decision to donate bone marrow to save a life," she says.

Masilamani thanked her husband profusely for supporting her when it mattered most.

"There are men who would leave their partners if the child is found to be having any such fatal disorder. But Kaviarasan has been a responsible father and a great partner," she said.

Describing bone marrow donation as a simple process without side effects, Masilamani hopes that her act would encourage other women to come forward.

"I understand that women have more compulsions to back out from donations than men. But I am an example that nothing is big enough to stop us from gifting a life. After undergoing the procedure, I can vouch that it is very simple and has no side effects. Many people discouraged me saying you may not walk properly, you may get bedridden, marrow will be taken from spine etc," she pointed out.

Asked if she was willing to donate again, Masilamani said she would be more than happy to do it.

"They say the greatest gift is the gift of life and it is a golden opportunity to gift it if you are found to be a match. I will definitely donate".

As of now, India has a total of 1,36,244 female donors, which is about 34 per cent of the total registered donors, official data say.

The total number of women who backed out from donations in the last two years (January 2017 to February 2019) were 129, according to DATRI data.

"I feel privileged to have Masilamani as India's first lady bone marrow donor from DATRI. It makes me proud to say that while women are excelling in every field, there are a few who are doing extraordinary and phenomenal contributions to the human kind such as donating their blood stem cells to save lives. In the true sense, it is like giving birth, but not biologically," DATRI founder and CEO Raghuraj Rajagopal said.

DATRI is engaged in finding willing matched donors for patients suffering from fatal blood-related disorders and in need of a blood stem cell transplant. PTI

Medical Technology

New app helps patients navigate AIIMS campus, avail of facilities (Hindustan Times:20190312)

<https://www.hindustantimes.com/delhi-news/new-app-helps-patients-navigate-aiims-campus-avail-of-facilities/story-dqrAhsJUotcot3rOmCsEXP.html>

A new app with GPS-guided routing will come in handy for patients and their kin who find it difficult to negotiate the nearly 50 clinical departments and centres spread across the 107.6-acre main campus of the All India Institute of Medical Sciences (AIIMS) at East Ansari Nagar.

The app provides the entire layout of the hospital and the outpatient department, and has an option of GPS-guided route planning from one department to the other.

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The app, developed by Dr Narinder Kumar, a resident doctor from the department of hospital administration, is named 'AIIMS Information', and can be downloaded from the Google Playstore.

It provides the entire layout of the hospital and the out patient department, and has an option of GPS-guided route planning from one department to the other.

Registered patients can also check if they are eligible for the insurance scheme under the Prime Minister's Jan Arogya Yojna using their phone numbers. It provides maps to nearby government hospitals along with an emergency contact number for patients who need to be shifted because of unavailability of beds or services.

"I thought of this app when a friend came to AIIMS for the treatment of his month-old daughter with congenital heart condition. He would spend the entire day just looking for departments. I thought if an educated person who could read signs and directions was having so much trouble negotiating the campus, the thousands who come here would be facing similar problems," said Kumar.

There are signboards across the hospital but they are not enough.

"The signages are not enough to help patients navigate from one area of the hospital to the other. For example, there are no directions to guide a patient from the OPD to the dental block. They have to step out of the building and ask someone where the dental block is. The

signages appear only when they are approaching the department,” said Dr DK Sharma, medical superintendent, AIIMS.

“People these days are tech-savvy and can follow GPS directions, so it was felt an app like this can help them navigate the hospital,” Sharma said.

The app allows patients to get online appointments and view their laboratory reports using the unique hospital ID, websites for which already existed and have now been integrated into the application.

Apart from clinical services, the app provides directions to the pharmacy and medicine store on-campus, canteens and washrooms open to patients, and the car park within the hospital. A map directs people to the night-stay facility available for relatives of patients along with details of documents required, charges, and a contact number.

“There is a night-stay facility that AIIMS has developed in association POWERGRID as part of their corporate social responsibility. But patients do not know about it. It provides stay and breakfast for just R 50 and yet many sleep on pavements outside. Hopefully, this app will help some of these patients,” said Kumar.

The idea of a static map was dropped as it cannot be updated as and when the hospital gets renovated.

“Currently the app mentions how to get a new appointment but in future, I plan to include other processes such as what formalities need to be completed if a patient has died, etc,” said Kumar.

Gender discrimination

53% of working women say their workplaces are male dominated (The Hindu:20190312)

<https://www.thehindu.com/news/national/53-of-working-women-say-their-workplaces-are-male-dominated/article26501231.ece>

There is also a gap when it comes to remuneration.

Gender discrimination high in telecom and manufacturing sector, says survey

For 97% of working women, life has changed post migration, said a survey by ICICI Lombard on the physical and mental health of working women through their career span.

The study surveyed working women in the age group 22-55 years, covering aspects like migration for work, resuming work post maternity and women at work facing menopause. The objective of the survey was to understand issues faced by working women at the workplace.

While gender equality at the workplace has become a byword in the corporate sector, the survey has brought forth the fact that 53% of the working women believe their workplaces are still male dominated.

Of this, 46% belong to the age group 22-33 years, followed by 35% group from the age group 34-44 years. Women in the telecom and manufacturing sector experienced more instances of gender discrimination than any other sector.

Another interesting facet of the survey was in that 62% of the respondents believed that recognition at par with male counterparts notwithstanding, there is a gap when it comes to remuneration. This was found to be more prevalent in the manufacturing and financial sector.

The imbalance thus created puts extra pressure on women leading into 'increased frustration levels (66%)', 'working beyond their capacity to prove their mettle (64%)' and 'stress due to high expectations (62%)'.

Workplace abuse was an aspect faced more by older women (45-55 years), with a majority of them reporting this to HR (43%), but a significant lot (32%) also quitting on account of this.

Positive change

Migration for work has proved to be a positive change for 97% of working women, enhancing self-confidence and financial independence. Cultural shock, though, is a major challenge.

Also, women migrating post 30 are more prone to stress as it is mentally difficult to accommodate in formal office environment, the survey said.

Respondents to the survey relating to menopause revealed that depression is a common emotion impacting 89% of working women, leading 42% of them to take leave once a month. In order to relieve that stress, 49% of the women engaged in activities like yoga, while others preferred morning/evening walks and zumba. However, gym and outdoor sports are almost negligible.

The study involved online quantitative interviews with 1500 working women, across five locations.

Influenza

WHO strategy to fight flu pandemics (The Hindu:20190312)

<https://www.thehindu.com/sci-tech/health/who-strategy-to-fight-flu-pandemics/article26502365.ece>

The World Health Organization on Monday launched a strategy to protect people worldwide over the next decade against the threat of influenza, warning that new pandemics are “inevitable”.

Influenza epidemics, largely seasonal, affect around one billion people and kill hundreds of thousands annually, according to WHO, which describes it as one of the world’s greatest public health challenges.

WHO’s new strategy, for 2019 through 2030, aims to prevent seasonal influenza, control the virus’s spread from animals to humans and prepare for the next pandemic, WHO said.

The new strategy called for every country to strengthen routine health programmes and to develop tailor-made influenza programmes that strengthen disease surveillance, response, prevention, control, and preparedness.

WHO recommends annual flu vaccines as the most effective way to prevent the spread of the disease, especially for healthcare workers and people at higher risk of influenza complications.

It also called for the development of more effective and more accessible vaccines and antiviral treatments.

Due to its mutating strains, vaccine formulas must be regularly updated and only offer limited protection currently.

But Martin Friede, WHO’s vaccines coordinator, urged broader use of seasonal vaccines, which not only protect vulnerable populations but also help prepare countries to rapidly deploy vaccines in the case of a pandemic. “In a perfect world, everyone would be vaccinated.”

Child Health

'Air pollution may affect unborn baby's health' (The Hindu:20190312)

Small unseen particles inhaled by pregnant women may damage the cardiovascular system of the unborn baby, according to a study. Researchers found that early first trimester and late third trimester were critical windows during which pollutants most affect the mother's and foetus' cardiovascular systems.

THREAT OF BIO-TERROR FROM CRISPR



JAYANTH MURALI

Rampage, starring Dwayne "The Rock" Johnson, is a 2018 Hollywood sci-fi monster movie which is slated for Indian release on April 13, 2019. In the film, a biotech company "Energyne" under the guise of researching a cure for diseases, decides to advance CRISPR research to use it as a biological weapon. The pathogens created in the lab transform animals into massive mutants which go on a rampage destroying everything in their path.

CRISPR is an acronym for "Clustered Regularly Interspaced Short Palindromic Repeat". This name refers to the unique organisation of short, partially palindromic repeated DNA sequences found in the genomes of bacteria and other microorganisms. CRISPR is a powerful gene-editing technology that scientists use to change the genetic blueprint of plants and animals and even humans. The joy of CRISPR is that it allows us to edit genes painlessly across all cell types and species.

For approximately one lakh years of human existence, our human evolution has been shaped by the forces of random mutation and natural selection. All of a sudden we now possess the power of God not only to change our DNA but also the DNA of the generations to come. It's something beyond our comprehension. It's also unprecedented in the history of life on earth. How are we humans going to wield this mind-blowing power?

CRISPR-Cas9 technology enables scientists to edit the DNA by removing, adding or altering sections of the DNA sequence. The Cas9 enzyme, which the CRISPR uses, is truly sensational. It's essentially, a pair of molecular scissors that can cut the two strands of DNA at a specific location in the genome so that bits of DNA can then be added or removed. The Cas9 enzyme uses a piece of RNA called guide RNA (gRNA) about 20 bases long which 'guides' Cas9 to the right part of the genome to ensure that Cas9 enzyme cuts the DNA at the right point in the genome and deletes the existing gene sequence. After which, it's easy to replace the deleted section of DNA with desired genes or nucleotide.

The Yunnan laboratory in Kunming, China, is the first lab to tinker with CRISPR on the genome of Macaque monkeys to produce monkeys with purple eyes, orange eyes, or any colour that they want. And the eye colour is only the start. This technology is limitless when it comes to the number and types of genetic alterations it can make.

Gene editing has the potential to cure many genetic illnesses. The human genome is made up of 3.2 billion letters. CRISPR can perform the amazing feat of locating an incorrect letter in the jumble of 3.2 billion nucleotides and snip out the incorrect or the mutated gene leaving the rest intact. For instance, members suffering from sickle-cell anaemia disease of the haemoglobin, have just a single mutation in the gene coding for haemoglobin. Using CRISPR, it shouldn't be hard to replace that letter in the DNA, curing the millions who suffer from this devastating affliction. CRISPR could even be

used to treat HIV/AIDS, either by cutting the virus's DNA out of a patient's infected cells or by editing the patient's DNA so that the cells avoid infection altogether.

With CRISPR there are myriad possibilities. With CRISPR it would be plausible to cure any disease caused by one or a few mutations: not just sickle-cell but Huntington's disease, cystic fibrosis, muscular dystrophy or colour blindness. Some physicians have already started treating some cancers by appending DNA sequences to the DNA of the immune cells which would help hunt down and destroy malignant tumour forming cells. We could also change the appearance of our children, modifying their hair and eye colour or even, in principle, their height, weight, body shape and intelligence. None of this has been tried in people, but since CRISPR works well in human cell cultures, it seems just a matter of time before CRISPR based therapies become available to all. Gene editing holds the promise of not only life-saving cures but also prevention as well as eradication of diseases in future humans. In November of 2018, Chinese scientist He Jiankui reported that he'd used the CRISPR tool to edit the embryos of two girls by deleting a gene called CCR5, which allows humans to get AIDS.

CRISPR, a revolutionary gene-editing tool, has its downsides. It's a significant threat because of its possibility of misuse. Gene editing technologies could be used for development of genetic weapons of mass destruction. The world today is faced with many threats such as terrorism, nuclear escalation, cyber-warfare etc. Beyond all these threats, a global threat assessment report released in 2016 by U.S. director of national intelligence James Clapper placed "genome editing" among six threats listed in the section on weapons of mass destruction.

CRISPR is a double-edged sword. CRISPR could be used to cure almost any human ailment. On the other hand, it could be used to create a killer mosquito or a plague that could wipe out crops or humans. The technology will increase the potential to develop pathogens that express enhanced or unique virulence for which there may be no known effective treatment for infected persons or animals. Or terrorists could create a virus that kills humans by sniping-out important segments of people's DNA, at the molecular level. There is a great danger of amateur terrorists, non-state actors such as ISIS, or rogue states such as North Korea, laying their hands on it and using the technology to create a



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bioweapon such as the earth has never seen.

The most intimidating and cataclysmic thing about CRISPR is that it's not just a one-time event. The damage is not confined to a particular area or time. For instance, when suicide bombers explode themselves or when an explosive-laden vehicle rams into a bus full of people like they did recently at Pulwama, India, the fatalities and devastation are contained to the area around the explosion.

On the other hand, when a gene is modified in a plant, animal, or a person, that modification is not restricted to that one living thing. The mutations of the gene are inherited, not just by their children, but also by the future offspring of the children. CRISPR technology can genetically alter every future generation, to the end of the species. Besides, bio-terror attacks, unlike nuclear and chemical weapons, are not confined to a limited area; they

spread worldwide and have worldwide ramifications.

A couple of years ago, it would have been tough for an individual to engineer a bio-weapon and carry out an attack single-handedly. However, that is changing at an accelerated pace. The question which is ripe and appropriate to be asked now would be - Who is going to develop it first? A terrorist group? A rogue nation? Or an insane psychopath? The question is not even of "if"? It's about when?

It takes months or years to produce nuclear weapons. One would need radioactive materials, expensive reactors, breeders, centrifuges etc. But for a bio-weapon, all one needs is some knowledge and a lab.

CRISPR/Cas9 tool is robust, accurate and easy to use. It's way cheaper and faster. Now any Tom Dick and Harry or a terrorist can order an online CRISPR-gene-editing kit for a couple of hundred dollars, or even \$60. It's everywhere and it's not being outlawed in western nations as doing so would move the manufacture of CRISPR-kit overseas to other countries. Which means a terrorist or radical groups would not find it difficult to establish a CRISPR infrastructure. As many labs worldwide are working on CRISPR, without any biosafety norms, there is also a risk of accidental release of engineered pathogens.

You don't need to have a psychopath going on a rampage killing people or have suicide bombers going berserk. A bioterrorist could take a regular virus's DNA and program it to disrupt or repress all or any cell functions. Thereby engineer a bio-weapon which could create any desired impact. For instance, he could choose to

make the male or female population of a particular race or class of people or the entire world to lose the capacity to reproduce, or he may introduce a virus which would turn the whole male population into gays by bringing about changes in the genome.

A bio-terrorist would be able to accomplish such a task without having to kill a single human. This type of bio-terror event would not be known at least for a decade or two, and nobody would ever know who perpetrated the attack as there would be no clues. Some smart group could also make a vaccine for themselves and their offspring, and let loose a bio-weapon to wipe out a particular community or the entire human race. Today the biggest threat to humans is therefore hidden in our genome. And the advancements in the field are showing that our genomes are like a bomb which are waiting to be triggered by an unseen bio-weapon.

The motivation for a bioterrorist to carry out acts of bioterror stems from a consciousness of ignorance. Human consciousness must first change on an individual level before broader social changes can take place in this world. The Dalai Lama said, "If we taught every eight-year-old to meditate, we would end the war in one generation." Laws can't control violence, governments can't prevent it, nor can wars stop it, because violence or terrorism of any kind starts in the consciousness of the individual, lost in the ignorance of separation.

Dr K. Jayanth Murali, an IPS officer, is Director DVAC, Chennai

Diabetes

Is home test for Type 2 diabetes a waste of time and money? (The Hindu:20190312)

It is usually maintained with regular administration of drugs on a set schedule; self-monitoring may be unnecessary, according to studies

For people with Type 1 diabetes, monitoring and insulin is standard care.

More than 30 million people in the U.S. have diabetes. The vast majority of them have Type 2 diabetes. Some of those are testing their blood sugar at home, but the best research is telling us that they do not need to — that in fact it is a waste of money.

It is not a small problem. The waste is running into the billions of dollars and it is costing all of us money through the health care system.

For people with Type 1 diabetes, blood glucose monitoring and insulin administration is the standard of care. Patients need to check their blood sugar a number of times a day, then give themselves insulin to replace what would have been made in the pancreas. Treatment for Type 2 diabetes, however, does not involve these critical calculations of insulin. It is usually maintained with pretty regular administration of the same drugs on a set schedule.

Self-monitoring for blood glucose, therefore, may be unnecessary. This has been tested in well-designed studies.

Pragmatic study

The Monitor trial, published two years ago in *JAMA*, was a pragmatic trial that took place in 15 primary care practices in North Carolina. Patients with Type 2 noninsulin-treated diabetes were randomly assigned to one of three groups.

People in the first group were told to check their blood glucose once a day. People in the second were told to check their blood glucose once a day and then were given tailored advice depending on the results from the meter. The third group was told not to check blood sugar at all.

After one year (a pretty impressive length for a study like this), there were no differences in the hemoglobin A1C levels (the best way to monitor long-term blood glucose control) between the three groups. There were also no differences in the health-related quality of life measures for the patients. There were no differences in the number of times they experienced hypoglycemia, how much care they needed and how many progressed to the need for insulin.

In other words, there were no measurable differences in how patients fared, whether they checked blood sugar or not.

This evidence, while the best to date, confirmed what previous work had shown.

What critics say

Still, not everyone is on board. Critics said it did not prove that blood glucose monitoring could not help: It is possible that with better training, or more attention to detail, there might be ways to make this work.

The point of pragmatic comparative effectiveness trials like this, though, is to test how practices work in the real world. In these highquality primary care practices, even with customised help in interpreting the measurements (which is more than most patients get), testing blood sugar did not make a difference.

Choosing Wisely, a campaign group, advises against routine home glucose monitoring for patients with Type 2 diabetes who are not on insulin. It says that there is no benefit and that there are potential harms. This argument is supported by the American Academy of Family Physicians and the Society of General Internal Medicine. Of course, there are exceptions. When patients are acutely ill, or changing regimens, or finding that their blood sugar is not well controlled, testing may be appropriate. Such decisions should be made in consultation with a physician.

But for most people with Type 2 diabetes not on insulin, testing is inappropriate most of the time. That message is not getting through. At the end of last year, another study was published in JAMA Internal Medicine that quantified the prevalence of glucose testing in adults. Researchers examined a database that contained data on more than 3,70,000 people who had Type 2 diabetes.

Of the more than 23% of patients who were using testing strips, more than half were probably doing so despite widespread recommendations that they shouldn't. They were using a median of two testing strips a day at a cost of more than \$325 per year per patient.

23andME offers genetic risk report on diabetes

■ Experts sceptical about polygenic score to predict risk

AGE CORRESPONDENT
HYDERABAD, MARCH 11

Often considered as the diabetic capital of the world, India has a big challenge on its hands. In the US, too, diabetes is a significant health risk. Now, DNA testing firm, 23andMe, is betting on its on its gene testing kits to offer a report that identifies the customer's genetic predisposition toward type 2 diabetes.

The test, which provides a polygenic score based on gene variant research data from roughly 2.5 million customers, is yet to be approved by the US Food and Drug Administration.

Ideally, the report, will be available to gene testing kit buyers starting March 11, would help the customer to change their diet and habits to reduce the chance of developing diabetes.

The company is partnering with Lark Health to offer the company's \$20 per month AI health coaching service to customers who are at risk of developing diabetes.

However, the reports are reliable for people from non-European ancestry, according to a report on Wired.

The report states, "The algorithms that calculate polygenic risk scores aren't new — they were largely pioneered in the mid-2000s. What's new is the ability to derive them using huge genetic databases like 23andMe's. Those databases, however, are overwhelmingly white. Because polygenic scores perform best for people with the same ethnic background as the DNA data used to train the algorithms, 23andMe's new

IBM'S AI-DRIVEN BLOOD TEST MAY DETECT ALZHEIMER EARLIER

The race to find a cure for Alzheimer's, till date, had ended in failure. Now, a new IBM Research has the potential to spark a major breakthrough.

Harnessing the powers of machine learning, researchers have discovered a way to detect a biological marker associated with the disease — a peptide called amyloid-beta — with a simple blood test.

The solution can even detect an individual's risk for Alzheimer's earlier than a brain scan can and way before symptoms start showing up.

Unfortunately, harvesting spinal fluid for testing is highly invasive, expensive and not ideal for an early detection procedure.

IBM scientists did was use machine learning to identify the proteins in blood that can predict the concentration of the biomarker in spinal fluid.



While testing actual spinal fluid will obviously be more accurate, IBM believes its blood test can help predict Alzheimer's risk with an accuracy of up to 77%.

diabetes test isn't as accurate for folks of non-European ancestry. It performs especially poorly for black Americans—barely better than a coin flip."

Experts talking to MIT Technology Review too noted that polygenic scoring methods aren't extremely accurate at this stage, even though they've improved considerably since 23andMe dropped many of its health tests in 2013.

Others too have expressed scepticism at the method. "There's so little

value in these scores that I have no idea what people should do with it," says Cecile Janssens, an epidemiologist at Emory University who studies how genomics enters health practice. "You might as well just look in a mirror; that's as good a predictor for diabetes as all your genes put together."

However, the company says its diabetes test is accurate for black, Asian and Latino customers, polygenic score predictions have historically produced worse results for non-Europeans.

But, the company's own vice president of research (a Chinese woman married to a Mexican man) wrote about the problem, in a column for *Stat*. Through research collaborations with academics, the company is trying to fill out those sparse parts of its database, but the process is slow.

While the scientific validity of polygenic risk scores is still up for debate, but with 23andMe bringing it back to the mainstream, the discussion is becoming more urgent.

Diabetes: Could muscle strength lower risk? (Medical News Today:20190312)

<https://www.medicalnewstoday.com/articles/324669.php>

Many people worldwide have type 2 diabetes, a metabolic condition in which the body cannot properly regulate blood sugar levels. Experts already know that lack of physical activity can contribute to the risk of diabetes, but what type of exercise might lower it?

Building up muscle strength could help lower diabetes risk, new findings suggest.

Recently, researchers have been looking into the effects of exercise on the risk of type 2 diabetes, asking what kind of physical activity might help decrease it the most.

These researchers hail from Iowa State University in Ames, the University of South Carolina in Columbia, the Pennington Biomedical Research Center in Baton Rouge, LA, and the Ochsner Clinical School at the University of Queensland School of Medicine in Brisbane, Australia.

Their findings — which appeared earlier today in the journal Mayo Clinic Proceedings — indicate that people with moderate muscle strength, maintained and consolidated through resistance exercise, may be at a considerably lower risk of type 2 diabetes.

This effect, the scientists note, is independent of other factors such as cardiorespiratory fitness. They also point out that moderate muscle mass seems to be enough to provide this benefit — increasing it does not lower risk any further.

Associate professor Duck-chul Lee, from Iowa State University, explains that the current findings suggest that even moderate resistance training can be beneficial in this respect. However, he cautions that it is difficult to establish how much is enough.

"Naturally, people will want to know how often to lift weights or how much muscle mass they need, but it's not that simple," notes Lee.

"As researchers, we have several ways to measure muscle strength, such as grip strength or bench press. More work is needed to determine the proper dose of resistance exercise, which may vary for different health outcomes and populations," he continues.

Over 30 percent lower risk of diabetes

For this study, the scientists used the data of 4,681 adults aged 20–100, none of whom had diabetes at baseline. They accessed this information through the Aerobics Center Longitudinal Study. All the participants agreed to do chest and leg presses to allow the researchers to measure individual muscle strength.

To provide more accuracy, the investigators also adjusted these measurements for several potentially confounding factors, including age, biological sex, and body weight. All the participants also completed relevant health exams both at baseline and at the follow-up stage.

The researchers found that those who exhibited moderate muscle mass had a 32 percent lower risk of type 2 diabetes. This effect appears independently of other lifestyle factors, such as frequent drinking and smoking, as well as of obesity and high blood pressure — both of which are risk factors for diabetes.

How does exercise prompt fat to benefit metabolism?

New research has uncovered more facts about how exercise benefits metabolic health.

Still, the investigators were unable to obtain detailed information about all the participants' resistance training habits. However, the data they managed to collect from one small group suggested that there may be a moderate association between a person's muscle strength and how often they participate in this type of exercise.

"You're not necessarily going to see the results of resistance training on your bathroom scale," cautions study co-author Angelique Brellenthin, "but there are several health benefits."

She adds that "[i]t may help lower your risk for type 2 diabetes even though you do not lose body weight, and we know maintaining muscle mass helps us stay functional and independent throughout life."

Brellenthin acknowledges that so far, it remains unclear just how often, and at what intensity, a person should engage in resistance training to lower their diabetes risk. Future studies will need to address this gap.

Despite this, she points out that the recent findings suggest that even a little resistance training is, most likely, better than none at all, and that people should not feel as though they have to jump right into the most difficult exercises to reap the benefits.

"We want to encourage small amounts of resistance training and it doesn't need to be complicated. You can get a good resistance workout with squats, planks, or lunges. Then, as you build strength, you can consider adding free weights or weight machines."

Angelique Brellenthin

Heart Disease (The Asian Age:20190312)

<http://onlinepaper.asianage.com/articledetailpage.aspx?id=12604000>

'Yoga can cure heart ailments'

SUNIL THAPLIYAL
NEW DELHI/RISHIKESH,
MARCH 11

With an aim to cure cardiovascular diseases through meditation, the All India Institute of Medical Sciences (AIIMS) Rishikesh organised a two-day event on Saturday, which was the world's first symposium on "Role of Meditation in Prevention and Treatment of Cardiovascular Diseases".

The cardiology department at AIIMS Rishikesh announced that after several researches it has concluded that cardiovascular diseases are preventable through meditation, yoga and a healthy lifestyle.

Cardiologist and electrophysiologist at St. Francis Hospital, Memphis in

● **The cardiology department at AIIMS Rishikesh announced that after several researches it has concluded that cardiovascular diseases are preventable through meditation, yoga and a healthy lifestyle**

USA, Indranil Basu Ray said: "Researches (aged 18-80 years) have shown that heart patients who start practising yoga and meditation earlier (after their first attack) have successfully reduced the chances of a second attack by 20-40 per cent from that of 12 per cent."

President and spiritual head of the Parmarth

Niketan Ashram, a spiritual institution based in Rishikesh, Swami Chidanand Saraswati welcomed this step and said: "It is a huge step towards a healthier future."

Head of cardiology department, Dr Bhanu Duggal told the media: "Owing to their stressful life, more youngsters in their working age are now prone to the disease and so much of money is being spent to combat these diseases, which adversely affects our economy and demography."

"In India, we have seen that the younger population is more affected by cardiovascular diseases. Everyday two to three heart attack patients get admitted in emergency. Crore of rupees are being spent to combat these diseases," she added.

New drug limits damage to heart muscle from heart attack (Medical News Today:20190312)

<https://www.medicalnewstoday.com/articles/324667.php>

An experimental drug has shown great promise in limiting the damage that a heart attack can inflict on the heart. It targets a protein that plays a central role in the death of heart muscle cells.

New experiments in mice find that a small molecule can restrict the damage to heart muscle that a heart attack can cause.

Tests on mice have revealed that the drug could markedly reduce heart injury from a heart attack.

The small-molecule drug blocks the protein MAP4K4, which relays the oxidative stress signals that cause the death of heart muscle cells and damage to tissue.

"There are no existing therapies," says lead investigator Dr. Michael D. Schneider, from Imperial College London in the United Kingdom, "that directly address the problem of muscle cell death, and this would be a revolution in the treatment of heart attacks."

Schneider and the team report their findings in a paper that now appears in the journal *Cell Stem Cell*.

There, they also describe how they grew heart tissue from human stem cells and developed a way of modeling a "heart attack in a dish" for testing the drug.

Heart attack and heart failure

Heart attack is the common name for myocardial infarction, which means the death of heart muscle tissue due to a lack of oxygen and nutrients. It occurs when a clot obstructs one of the arteries that bring nutrient- and oxygen-rich blood to the heart.

When they don't get enough oxygen and nutrients, the heart cells become stressed, generate stress signals, and eventually die.

Loss of cells damages the heart muscle, causing the heart to pump less efficiently. This leads to heart failure, which is a condition wherein the heart cannot pump enough blood to meet the body's needs.

Exercise can halve heart attack risk in healthy people

Being physically inactive can greatly increase the long-term risk of a heart attack, even if a person currently has no symptoms.

According to the Centers for Disease Control and Prevention (CDC), around 5.7 million adults in the United States have heart failure.

People with heart failure struggle with everyday activities and get out of breath easily. They feel weak and tired nearly all the time and have trouble breathing when they lie down. Other symptoms include weight gain and swelling in the feet, ankles, legs, and stomach.

Thanks to treatments such as drugs that break up blood clots and stents that keep arteries open, an increasing number of people are surviving heart attacks. This means that the number living with heart failure is also increasing.

Reducing cell death from oxidative stress

The stress signals that a heart attack induces in heart muscle also occur following blood flow restoration.

So, while it is crucial to restore blood flow following a heart attack, there is also a need to add treatments that limit this "reperfusion injury." Scientists have been searching for such treatments for some time.

Dr. Schneider and his team are the first to uncover the role of MAP4K4 in the process through which a heart attack, by inducing oxidative stress, kills heart muscle cells.

In their investigation, they revealed that MAP4K4 is active in heart tissue of people with heart failure, and also in mice, following a heart attack.

They then devised a number of "highly selective" small-molecule blockers of MAP4K4 and demonstrated that their use can effectively protect human heart muscle cells from "lethal experimental injury."

They used chemicals to induce oxidative stress in heart cells and human heart muscle tissue that they had grown from human induced pluripotent stem cells.

The team observed how oxidative stress activated MAP4K4 and how raising levels of the protein also made heart muscle cells more sensitive to it. Blocking the protein, on the other hand, protected the cells from stress-induced death.

First to test drug on human cells

Following the cell experiments, the scientists selected one candidate small molecule and took it forward "into further proof-of-concept studies in mice."

The team found that giving mice the drug 1 hour after restoring blood flow to the heart reduced reperfusion injury "by more than 50 percent."

The researchers hope that their findings will lead to an injection that doctors can give to people about to undergo balloon angioplasty to open a blocked artery following a heart attack.

Another possibility is that such a drug could also help limit heart muscle damage from heart attacks in regions with no rapid access to treatments that restore blood flow.

The team believes that, because they tested the drug in a model that they had developed using human stem cells, it should stand a good chance of succeeding in human clinical trials.

"One reason why many heart drugs have failed in clinical trials may be that they have not been tested in human cells before the clinic. Using both human cells and animals allows us to be more confident about the molecules we take forward."

Dr. Michael D. Schneider

Stress

Stress: A feeling of control may limit its negative effects (Medical News Today:20190312)

<https://www.medicalnewstoday.com/articles/324631.php>

Researchers conducted a study on rats and revealed that the possibility of controlling the source of stress may be key to reducing its impact.

Stressed woman sitting alone

Controlling stress is important to reducing its negative consequences.

Everybody experiences stress at some point in their lives.

Sometimes, stress can be a positive force and lead to positive outcomes.

However, when it becomes chronic, it might produce a range health complaints.

These may include headaches, muscle tension, chest pain, gastrointestinal issues, insomnia, and mental health conditions.

According to the American Psychological Association, the top causes of stress in the United States include job pressure, money, health, relationships, poor nutrition, media overload, and sleep deprivation.

Around 80 percent of U.S. individuals regularly experience physical symptoms caused by stress. It is essential to learn how to manage stress to reduce the risk of physical and mental issues.

Some strategies to reduce stress include identifying its cause and developing a plan to address it, getting regular physical activity, and trying relaxation techniques such as breathing or meditation, as well as building strong relationships with family and friends.

Stress exposure in adolescence

Many people start to experience stress during adolescence. During this delicate phase, causes of stress can include family pressure, bullying, or performance anxiety.

Stress in adolescence may increase the risk of developing psychopathologies in adulthood, such as anxiety, addiction to alcohol or gambling, and attention deficit hyperactivity disorder (ADHD).

How does stress affect the brain?

A recent study set out to explain how stress can negatively impact the brain.

A team at the Institute of Neuroscience at Universitat Autònoma de Barcelona in Spain conducted a study on three groups of male rats.

They found that the ability to control stress sources in adolescence may reduce the risk of negative effects in adulthood. They published their findings in the journal *Scientific Reports*.

They exposed one group of rats to several sessions of stress during their adolescence, which they had the ability to control with certain behaviors. By changing their behavior, they could either prevent or stop the stressful stimuli.

Another group underwent the same number of stress sessions as the first, but its members did not have the ability to affect their stress levels using behavioral changes. The team did not expose the third group to stress.

Reducing the negative impact of stress

While exposing the rats to stress, the researchers measured their endocrine response through the activity of the hypothalamic–pituitary–adrenal axis (HPA), which is the central stress response system.

During the adult stage, they measured the expression of dopamine type 2 receptors in the dorsal striatum, which is an area of the brain that impacts behaviors. The scientists also measured a variety of cognitive factors.

The results showed that HPA activation caused by controllable and uncontrollable stress was equal in the groups' first exposure to stress. However, as the animals experienced more stress, a key difference between the groups appeared.

The controllable stress group had a lower HPA response, while the uncontrollable stress group developed an increase in motor impulsivity and a decrease in cognitive flexibility.

In addition, the behavioral impact of uncontrollable stress led to an increase in dopamine type 2 receptors in the dorsal striatum. This is a part of the brain involved in impulsivity and cognitive inflexibility. Stress did not affect other aspects, such as attention and cognitive impulsivity.

According to study co-leader Roser Nadal: "Despite the fact that being exposed to situations of stress has short- and long-term negative effects on behavior and physiology, there are several factors which could mitigate its impact. We have observed that one of these factors is the possibility of having control over the source of stress."

This animal study shows that promoting strategies to control stress sources in adolescence is one of the crucial factors that can help decrease the risk of high stress levels in adulthood and reduce vulnerability to physical and mental issues.

Alzheimer's disease

Could sleep apnea be a risk factor for Alzheimer's? (Medical News Today:20190312)

<https://www.medicalnewstoday.com/articles/324632.php>

The majority of people with sleep apnea do not receive a diagnosis. However, brain scans have revealed that there may be an association between this condition and a form of dementia.

There may be an association between sleep apnea and dementia, according to a recent study.

According to the American Sleep Apnea Association (ASAA), an estimated 22 million people in the United States have sleep apnea.

This condition, which causes a person to stop breathing during sleep, can be infrequent or regular.

Doctors refer to regular sleep apnea as obstructive sleep apnea. Without treatment, it can lead to a number of cardiovascular problems, including high blood pressure, stroke, and chronic heart failure.

Obstructive sleep apnea also has links to both depression and type 2 diabetes.

"Recent research has linked sleep apnea to an increased risk of dementia," notes Dr. Diego Z. Carvalho, a neurology fellow at the Mayo Clinic in Rochester, MN.

Along with colleagues, he authored a study to investigate whether there was a potential relationship between sleep apnea and a particular Alzheimer's biomarker.

This biomarker is a protein called tau, which is present in the brains of people with Alzheimer's. Tau proteins form tangles that doctors can identify on scans.

Difficult diagnosis

"A person normally has fewer than five episodes of apnea per hour during sleep," states Dr. Carvalho. The issue is that many people do not know that they have the condition.

The ASAA report that an estimated 80 percent of people with moderate-to-severe obstructive sleep apnea do not get a diagnosis.

To determine which of the participants experienced sleep apnea, researchers asked their bed partners to look out for episodes of stopped breathing during the night. A total of 288 people aged 65 years and older took part in the study. None had any signs of cognitive impairment.

In addition to asking the participants' bed partners to monitor their sleep, the researchers used PET scans to check whether the tau protein was present in their brains. Specifically, they examined the entorhinal cortex area, as tau tangles are more likely to build up there. This part of the temporal lobe plays a role in memory, navigation, and time perception.

Which came first?

Dr. Carvalho and colleagues found a link between sleep apnea and a higher presence of tau in the brain.

The overnight monitoring process revealed that 43 people experienced apnea episodes during the night. On average, those participants had levels of tau in the entorhinal cortex that were 4.5 percent higher than those in the participants without sleep apnea.

The team identified this increase after controlling for other factors, such as age, sex, cardiovascular risk factors, and other sleep issues.

Sleep apnea may stop you from forming life memories

A recent study concludes that obstructive sleep apnea could impair a person's ability to form personal memories.

The medical community considers these results to be preliminary as they have not yet featured in a scientific journal. However, the researchers will present them at an upcoming American Academy of Neurology meeting in Philadelphia, PA.

Dr. Carvalho concludes that these results "raise the possibility that sleep apnea affects tau accumulation." However, he describes the findings as a chicken-and-egg scenario, adding: "It's also possible that higher levels of tau in other regions may predispose a person to sleep apnea."

An unclear link

Previous research has identified a link between dementia and sleep apnea. However, further studies using larger sample sizes will be necessary to validate the findings.

The methods that the Mayo Clinic team used also mean that it is not certain whether participants actually had sleep apnea, how severe their condition was, and whether they were already receiving treatment.

If there is a relationship between sleep apnea and dementia, it is not entirely clear why this exists. Researchers have suggested a number of different reasons. One could be that the brain consolidates memories during sleep, and interrupting this process might lead to memory issues.

The lack of oxygen reaching the brain during apnea episodes could be another reason, especially if this puts stress on the organ.

Pregnancy

Smoking during pregnancy increases risk of sudden infant death: Study (New Kerala:20190312)

<https://www.newkerala.com/news/read/111968/smoking-during-pregnancy-increases-risk-of-sudden-infant-death-study.html>

Washington D.C, Mar 11 : Mothers, take note! According to a new study, mothers who smoke before and during pregnancy contribute to the risk of an infant dying suddenly and unexpectedly before their first birthday.

The results of the study were published in the journal 'Pediatrics'.

According to the study, any amount of smoking during pregnancy - even just one cigarette a day - doubles the risk of an infant dying from sudden unexpected infant death (SUID). For women who smoked an average of 1-20 cigarettes a day, the odds of SUID increased by 0.07 with each additional cigarette smoked.

With this information, doctors can better counsel pregnant women about their smoking habits, knowing that the number of cigarettes smoked daily during pregnancy significantly impacts the risk for SUID, said study author Dr. Tatiana Anderson.

Similar to public health campaigns that educated parents about the importance of infant sleep position, leading to a 50% decrease in sudden infant death syndrome (SIDS) rates, we hope advising women about this risk will result in less babies dying from these tragic causes, added Anderson.

If no women smoked during pregnancy, Anderson and her co-authors estimate that 800 of the approximately 3,700 deaths from SUID every year in the U.S. and other parts of the world could be prevented, lowering current SUID rates by 22 per cent.

To better understand how smoking contributed to SUID risk, the researchers used computational modelling techniques to analyse maternal cigarette smoking habits for all U.S. live births from 2007 to 2011.

Of the about 20 million live births included in their analysis, over 19,000 deaths were attributed to SUID with the specific cause of death occurring from SIDS, an ill-defined and unknown cause, or accidental suffocation and strangulation in bed.

Beyond overall cigarette consumption, the researchers also looked at how smoking before pregnancy, and cutting back or quitting smoking during pregnancy, affected SUID risk.

Compared to the over half of pregnant smokers who did not reduce their smoking during pregnancy, women who reduced cigarette consumption by the third trimester saw a 12 per

cent decrease in SUID risk. Successfully quitting smoking was associated with a 23 per cent reduction in risk.

Their analysis also showed that mothers who smoked three months before pregnancy and quit in the first trimester still incurred a higher risk of SUID compared to non-smokers.

Anderson said that the data from this study supports public health efforts aimed at encouraging women to quit smoking well before pregnancy.

The most important takeaway is for women to understand that quitting smoking before and during pregnancy by far results in the greatest reduction in SUID risk. For pregnant women unable to quit entirely, every cigarette they can eliminate will reduce the odds of their child dying suddenly and unexpectedly from SUID, she said.

Liver Disease

Blood holds key to liver regeneration, study suggests (New Kerala:20190312)

<https://www.newkerala.com/news/read/111577/blood-holds-key-to-liver-regeneration-study-suggests.html>

Washington D.C, Mar 10 : The liver is the only organ in the body that can regenerate. A recent study shows that the blood-clotting protein fibrinogen may hold the key as to why some patients who undergo a liver resection, a surgery that removes a diseased portion of the organ, end up needing a transplant because the renewal process doesn't work.

We discovered that fibrinogen accumulates within the remaining liver quickly after surgery and tells platelets to act as first responders, triggering the earliest phase of regeneration. But if fibrinogen or platelets are inhibited, then regeneration is delayed, said James Luyendyk, lead author of the study published in the Journal Blood.

Platelets are blood cells that help form clots and stop bleeding. When they receive information from fibrinogen, they go into action and accumulate in the remaining part of the liver to help restore it, increasing the chances of a fully functional liver and successful recovery.

Using samples from patients undergoing liver resection and a comparable model in mice, Luyendyk and his team noticed that when fibrinogen was low, the number of platelets in the liver decreased.

This shows that fibrinogen deposits are extremely important and directly impact regeneration in both mice and humans, Luyendyk said.

According to Dafna Groeneveld, co-author of the study, their finding demonstrates that fibrinogen levels could be a predictive marker for doctors, too.

Measuring this protein in liver resection patients may help us determine in advance whether the organ will regenerate successfully or if it will become dysfunctional, she said.

Researchers suggest that these findings could lead to new treatments that would help doctors correct low levels of the protein by using fibrinogen concentrates that can be administered during surgery.