



DAILY NEWS BULLETIN

LEADING HEALTH, POPULATION AND FAMILY WELFARE STORIES OF THE DAY
Wednesday 20190116

खसरा और रूबेला

खसरा और रूबेला के टीकाकरण पर रोक (Dainik Jagran:20190116)

https://epaper.jagran.com/epaper/article-16-Jan-2019-edition-delhi-city-page_7-5874-3661-4.html

राज्य ब्यूरो, नई दिल्ली: खसरा और रूबेला की रोकथाम के लिए एमआर (खसरा-रूबेला) टीकाकरण अभियान को दिल्ली सरकार के परिवार कल्याण निदेशालय ने फिलहाल रोक दिया है। इसलिए स्कूलों में बुधवार से बच्चों को एमआर का टीका नहीं लगाया जाएगा। निदेशालय के अनुसार हाई कोर्ट के निर्देश पर इस अभियान को स्थगित करने का फैसला किया गया है।

बता दें कि 16 जनवरी से स्कूलों में बच्चों को एमआर का टीका लगाने की योजना थी। इसके लिए परिवार कल्याण निदेशालय ने पूरी तैयारी कर ली थी। दिल्ली में नौ माह से लेकर 15 साल की उम्र तक के 55 लाख बच्चों को टीका लगाने की योजना है। इस अभियान को शुरू करने के लिए मंगलवार को मौलाना आजाद मेडिकल कॉलेज (एमएएमसी) में दोपहर में समारोह का आयोजन भी किया गया। स्वास्थ्य मंत्री सत्येंद्र जैन ने इस अभियान की शुरुआत की थी। केंद्र सरकार पूरे देश में एमआर टीकाकरण अभियान चला रहा है। अब तक 20 करोड़ बच्चों को यह टीका लग चुका है।

अभिभावकों ने हाई कोर्ट में दायर की याचिका: परिवार कल्याण निदेशालय के निदेशक डॉ. नूतन मुंडेजा ने कहा कि कुछ छात्रों के अभिभावकों ने हाई कोर्ट में याचिका दायर की है। कोर्ट ने शिक्षा निदेशालय को स्कूलों में यह टीकाकरण अभियान रोकने का निर्देश दिया है। वहीं शिक्षा निदेशालय के

निदेशक संजय गोयल ने कहा कि कोर्ट का निर्देश मिलने के बाद विभाग ने 21 तक इस टीकाकरण अभियान को रोकने का आदेश जारी कर दिया है। 21 को इस मामले पर कोर्ट में दोबारा सुनवाई होगी।

Measles-rubella vaccination campaign: Vaccination in schools halted by Delhi HC (The Indian Express:20190116)

<https://indianexpress.com/article/cities/delhi/measles-rubella-vaccination-campaign-vaccination-in-schools-halted-by-delhi-hc-5540391/>

Court says Delhi govt plan lacks consent of parents, asks ads to be issued to spread awareness about vaccine

High Court pulls up Delhi University office-bearers over defacement in capital

Delhi HC refuses to vacate stay on online sale of medicines

Measles-rubella vaccination campaign: Vaccination in schools halted by Delhi HC

Delhi High Court

The Delhi High Court Tuesday put on hold till further orders the Delhi government's ambitious plan to conduct a vaccination campaign in schools across the capital to eliminate measles and control rubella, saying the decision lacks consent of parents.

The measles-rubella (MR) vaccination campaign was to be conducted within a period of three to four weeks, starting January 16.

Justice Vibhu Bakhru, however, in an interim order, suspended the Delhi government's project and sought the reply of the Ministry of Health and Family Welfare, Delhi government and its Directorate of Education (DoE) by January 21, on a plea stating that no person can be deprived of his life or personal liberty.

The court directed the DoE to coordinate with school principals and also issue advertisements through various modes, including national dailies, explaining the vaccine and its benefits. It also directed that the Delhi government seek consent of parents. For this, principals will ask teachers to coordinate with parents to take their consent before their child is vaccinated.

Delhi government's standing counsel Ramesh Singh and additional standing counsel Santosh Kumar Tripathi agreed to the court's direction, and said they will place before the court the steps taken in this regard.

Central government standing counsel Monika Arora and advocate Kushal Sharma said around 25 states have run such a campaign successfully. The court, however, directed the government to place their stand before it.

The court's direction came on petition filed by students of various private schools, including Modern School, through their parents. The petition sought to quash the DoE's December 19, 2018, notification of vaccinating children without obtaining consent of the recipients or their legal guardians.

"It is settled principle that choice of an individual, even in cases of life-saving medical treatment, is an inextricable part of dignity which ought to be protected... The law and procedure, authorising any kind of interference with personal liberty and right to privacy, must also be right, just and fair and not arbitrary, fanciful and oppressive," the students claimed in their plea.

As per the order to schools, all children aged nine months to less than 15 years will be provided with an additional dose of MR vaccine, regardless of previous vaccination status or history of measles/rubella-like illness.

Under the MR campaign, the departments of health and education are partnering so students and teachers of all schools actively participate. This will include orientation for officers, principals, teachers and students by experts of the Health Department.

School heads have been asked to assign teachers to help organise and conduct immunisation sessions in school and coordinate with health workers to conduct vaccination sessions during school timings.

"Ensure that students come to school after breakfast on the date of vaccination. If needed, timings of mid-day meal may be adjusted accordingly. Also ensure that teachers cross-check left thumb marking of all vaccinated children," the DoE's letter to schools said.

नर्सों की नियुक्ति

991 स्थायी नर्सों की नियुक्ति प्रक्रिया रद्द (Dainik Jagran:20190116)

https://epaper.jagran.com/epaper/article-16-Jan-2019-edition-delhi-city-page_7-6606-3661-4.html

राज्य ब्यूरो, नई दिल्ली: सफदरजंग अस्पताल में नवनिर्मित सुपर स्पेशियलिटी और इमरजेंसी ब्लॉक के लिए स्थायी नर्सों की नियुक्ति प्रक्रिया भ्रष्टाचार की भेंट चढ़ गई। अस्पताल में 991 नर्सों की नियुक्ति के लिए पिछले साल आयोजित परीक्षा में धांधली का मामला सामने आने के बाद केंद्रीय स्वास्थ्य मंत्रालय ने नियुक्ति प्रक्रिया रद्द कर दी है। अब एम्स को नर्सों की नियुक्ति की जिम्मेदारी दी गई है।

सफदरजंग अस्पताल के चिकित्सा अधीक्षक ने कहा कि एम्स स्थायी नर्सों की नियुक्ति के लिए परीक्षा आयोजित करेगा। परीक्षा कब होगी अभी यह तय नहीं हो सका है।

अस्पताल में इमरजेंसी ब्लॉक को एक साल जबकि सुपर स्पेशियलिटी ब्लॉक का संचालन शुरू हुए छह महीने से अधिक समय हो चुका है। इमरजेंसी ब्लॉक में 500 बेड व 12 ऑपरेशन थियेटर हैं। सुपर स्पेशियलिटी ब्लॉक में 807 बेड व 21 ऑपरेशन थियेटर हैं। लेकिन, डॉक्टरों और नर्सों की कमी से दोनों ब्लॉकों में क्षमता के अनुसार मरीजों को सुविधाएं नहीं मिल पा रही हैं। सुपर स्पेशियलिटी में करीब 10 ऑपरेशन थियेटर अभी तक बंद हैं। वहीं इमरजेंसी सेंटर में 12 ऑपरेशन थियेटर में सिर्फ छह में सर्जरी हो पा रही है। सफदरजंग अस्पताल ने कभी अनुबंध पर कभी स्थायी तौर पर नर्सों की नियुक्ति करने की प्रक्रिया शुरू की, लेकिन हर बार किसी न किसी वजह से नियुक्ति विवादों में फंस गई। सबसे पहले ठेके पर नर्सों की नियुक्ति प्रक्रिया शुरू की गई। नर्सिंग कर्मचारियों के संगठनों के विरोध पर मंत्रालय ने इसे रद्द कर दिया। इसके बाद स्थायी नर्सों की नियुक्ति में विलंब के कारण अस्पताल प्रशासन ने पिछले साल मई में अनुबंध पर 932 नर्सिंग कर्मचारियों की नियुक्ति प्रक्रिया शुरू की। इसमें सिर्फ 400 नर्सिंग कर्मचारियों की ही नियुक्ति हो पाई।

सितंबर में स्थायी नर्सों की नियुक्ति प्रक्रिया शुरू हुई। देश भर में परीक्षा भी आयोजित कर ली गई, लेकिन कुछ अभ्यर्थियों ने परीक्षा में धांधली का आरोप लगाया। अस्पताल प्रशासन ने नवंबर में इस मामले की फाइल मंत्रालय भेजी। जांच के बाद मंत्रालय ने इस परीक्षा को भी रद्द कर दिया। अस्पताल के चिकित्सा अधीक्षक डॉ. राजेंद्र शर्मा ने बताया कि ऑनलाइन परीक्षा के लिए एक निजी एजेंसी से करार

किया गया था। उस एजेंसी को भी नोटिस भेजा गया है। अस्पताल भविष्य में उस एजेंसी की सेवाएं नहीं लेगा। अब यह तय हुआ है कि एम्स नर्सों की नियुक्ति करेगा।

प्रदूषण

बर्फीली हवा से दिल्ली में लौटी ठंड, प्रदूषण का टूटा घमंड (Dainik Jagran:20190116)

https://epaper.jagran.com/epaper/article-16-Jan-2019-edition-delhi-city-page_7-6607-3661-4.html

राज्य ब्यूरो, नई दिल्ली: पिछले दो दिनों से चल रही बर्फीली हवा के चलते जहां दिल्ली में ठंड फिर लौट आई है, वहीं इसकी रफ्तार से प्रदूषण का घमंड टूटता दिख रहा है। यानी, हवा के कारण कड़ाके की ठंड से मुश्किल बढी है तो प्रदूषण कम होने से राहत भी है। मंगलवार को तो इस सीजन का सबसे कम एयर इंडेक्स मापा गया। लेकिन, बुधवार से हवा की रफ्तार कम होने लगेगी, जिससे ठंड में तो कमी आएगी पर प्रदूषण में इजाफा होगा। हालांकि, सफर इंडिया के मुताबिक अगले दो दिनों तक एयर इंडेक्स 350 से नीचे ही रहेगा।

मंगलवार को दिनभर ठिठुरन महसूस की गई। बादलों और सूरज में भी आंखमिचौली चलती रही। दिल्ली का अधिकतम तापमान सामान्य से एक डिग्री सेल्सियस कम 19.3 जबकि न्यूनतम सामान्य से एक कम महज छह डिग्री सेल्सियस दर्ज किया गया। मौसम विभाग के अनुसार, दिल्ली में अभी तीन से चार दिनों तक रात के समय ठंड बढ़ेगी। मौसम और प्रदूषण में कमी की वजह उत्तर पश्चिम दिशा से आ रही ठंडी हवा है। गुरुवार और शुक्रवार से यह फिर मंद हो जाएगी।

सीपीसीबी ने मांगी नियमित मॉनिटरिंग रिपोर्ट: सीपीसीबी ने दिल्ली प्रदूषण नियंत्रण समिति, हरियाणा राज्य प्रदूषण नियंत्रण बोर्ड और उत्तर प्रदेश प्रदूषण नियंत्रण बोर्ड को नोटिस जारी कर नियमित तौर पर वायु प्रदूषण की मॉनीटरिंग रिपोर्ट भेजने को कहा है। नियमों का उल्लंघन करने वालों के खिलाफ जुर्माना लगाने और केस दर्ज कराने का निर्देश भी दिया गया है।

स्वास्थ्य सुविधा

राजीव गांधी अस्पताल में 200 बेड की सुविधा बढ़ी (Dainik Jagran:20190116)

https://epaper.jagran.com/epaper/article-16-Jan-2019-edition-delhi-city-page_32-3413-3621-4.html

जागरण संवाददाता, पूर्वी दिल्ली : स्वास्थ्य मंत्री सत्येंद्र जैन ने पूर्वी दिल्ली स्थित राजीव गांधी सुपर स्पेशियलिटी अस्पताल में कई सुविधाओं का शुभारंभ किया। इस मौके पर समाज कल्याण मंत्री राजेंद्र पाल गौतम, दिल्ली के मुख्य सचिव विजय देव भी मौजूद रहे। इन सुविधाओं में मरीजों के लिए 200 बेड, सीटी स्कैन मशीन, डिजिटल एक्स-रे व कैथ लैब शामिल हैं। अस्पताल में इन सभी सुविधाओं के शुरू होने से अस्पताल में आने वाले मरीजों को काफी सुविधा होगी। अस्पताल में मरीजों की संख्या अधिक होने से बेड कम पड़ जाते थे, इससे मरीजों को असुविधा होती थी। अब 200 अतिरिक्त बेड लगने से अस्पताल में आने वाले मरीजों को इस तरह की समस्या का सामना नहीं करना पड़ेगा।

इस मौके पर स्वास्थ्य मंत्री ने कहा कि जितनी सुविधाओं की इस अस्पताल में शुरुआत हो गई है, उससे यह अस्पताल नंबर-10 से नंबर-दो में आ जाएगा। यहां की सुविधाओं से मरीज काफी खुश हैं। उन्होंने चिकित्सक, अस्पताल स्टाफ और मरीजों के बीच मधुर संबंधों की वकालत करते हुए कहा कि अब यहां डांस रूम बनवाया जाए। जहां अस्पताल के सभी स्टाफ से लेकर मरीज तक डांस कर सकें, योग व ध्यान कर सकें। इसी तरह यहां जिम और फिजियोथेरेपी सेंटर बनाने की भी जरूरत है। स्वास्थ्य मंत्री ने कहा कि अस्पताल से भी संगीत की ध्वनि आनी चाहिए, सभी के चेहरे पर हंसी आनी चाहिए। अगर ऐसा हुआ तो तीमारदारों व चिकित्सकों के बीच मारपीट की घटनाएं नहीं होंगी।

Rajiv Gandhi Super Speciality Hospital gets top tier equipment, but waits for more doctors (The Indian Express:20190116)

<https://indianexpress.com/article/cities/delhi/rajiv-gandhi-super-speciality-hospital-gets-top-tier-equipment-but-waits-for-more-doctors-5540369/>

In the latest push, 120 beds have been added to the existing 60, and facilities such as a School of Pulmonology, CT scan, digital radiography and a respiratory endoscopy unit have been introduced.

Rajiv Gandhi Super Speciality Hospital has around 100 staff against 916 sanctioned posts.
Amit Mehra

Touted as Delhi's second-best super-speciality hospital by Health Minister Satyendar Jain, Rajiv Gandhi Super Speciality Hospital, which added a number of facilities on Tuesday, has just around 100 staff against 916 sanctioned posts.

Built at a cost of Rs 153.66 crore, the hospital became operational in 2003. In the latest push, 120 beds have been added to the existing 60, and facilities such as a School of Pulmonology, CT scan, digital radiography and a respiratory endoscopy unit have been introduced.

“After GB Pant hospital, this is the second-best super-speciality hospital in Delhi... and it must be among the top 10 hospitals in the country. With the additional facilities, it will soon be among the country's top hospitals. We are soon going to fix problems of shortage of staff and the hospital will get 100% autonomy for smooth functioning,” Jain told The Indian Express.

A visit to this hospital and the Janakpuri Super Speciality Hospital by The Indian Express last week revealed that while they have world-class infrastructure, there are very few doctors to cater to patient load.

Crisis of manpower

Experts say it is important to improve facilities in super-speciality hospitals to take the burden off other institutes. Former AIIMS director Dr M C Mishra had suggested to the then L-G Najeeb Jung to give Janakpuri Super Speciality Hospital to AIIMS and Rajiv Gandhi Super Speciality Hospital to GB Pant to run. “To get a super-specialist for every hospital is not easy. Huge expansion in private sectors is one of the reasons for shortage of staff in the medical sector. With AIIMS having enough human resource, I had suggested giving us one of the hospitals. With our human resource and their infrastructure, health services for patients could have improved tremendously,” Dr Mishra told The Indian Express.

Spread over 13 acres, Rajiv Gandhi hospital has seven blocks housing five OTs and one functional ICU. It also has five functional departments – cardiology, gastroenterology, GI

surgery, pulmonology, urology – and a special pain chest clinic. There are 12 faculty doctors, two medical officers, one blood bank officer and around 80-90 resident doctors.

Of the seven blocks, OPD and emergency services are functional in the 6th and 4th block respectively. Other blocks are partly open, with most floors wearing a deserted look. Locked doors, empty passages and vacant rooms — the hospital's marbled floors don't see as much footfall as expected.

“Existing medical professionals are taking care of the administrative and clinical functioning. We have been trying our best to offer health services to patients... With the existing strength, I think we are doing well. We are treating 1,000-1,500 patients in the OPD on a regular basis,” said deputy medical superintendent Dr Chhavi Gupta.

Janakpuri Super Speciality Hospital, built at Rs 70 crore and inaugurated in 2008, still doesn't have an emergency ward, OT and ICU.

Built on nine acres of land, the 100-bed hospital is surviving on four departments — cardiology, neurology, nephrology and gastroenterology. It, however, has a few super-speciality clinics, such as for epilepsy and headache. It also started a catheterisation laboratory for cardio problems in 2017.

The departments are managed by six faculty doctors, including the hospital's medical director.

Sumitra (50), who came to the hospital with chest pain, has been given a date of March 6 for an ECG test. “We visited a cardiologist here, and barely had to wait for a check-up. Doctors are available, but facilities are not well-equipped,” said Vishveshwar Prasad, her husband.

Hospital medical director Dr MM Mehndiratta said: “We treat 1,200-1,500 patients in our OPD on a daily basis. We have one motto: Let's do less, but quantitatively; and quality will follow. We try to treat every patient that comes to our hospital.”

Delhi government health secretary Sanjeev Khirwar said: “The hiring process for super-specialists in these hospitals is already on. In the next one month, we will be able to complete the overall hiring process.”

हृदय रोग

छह घंटे से कम सोना हृदय के लिए घातक (Dainik Jagran:20190116)

https://epaper.jagran.com/epaper/article-16-Jan-2019-edition-delhi-city-page_22-6094-3636-4.html

अच्छी सेहत के लिए पर्याप्त नींद जरूरी है। लेकिन कम सोना हृदय की सेहत के लिए घातक हो सकता है। एक नए अध्ययन में आगाह किया गया है कि सात या आठ घंटे तक सोने वाले लोगों की अपेक्षा छह घंटे से भी कम सोने वालों में हृदय रोग का खतरा बढ़ सकता है। शोधकर्ताओं के अनुसार, अध्ययन में पाया गया है कि अच्छी नींद के अभाव में एथेरोस्क्लेरोसिस हार्ट डिजीज का खतरा बढ़ सकता है। यह समस्या धमनियों की दीवार पर कोलेस्ट्रॉल प्लैक के जमा होने से खड़ी होती है। इसके चलते रक्त प्रवाह में बाधा खड़ी हो जाती है। (प्रेट्र)

वैज्ञानिकों को थ्रीडी-प्रिंटिंग तकनीक के इस्तेमाल से स्पाइनल कॉर्ड यानी रीढ़ की हड्डी तैयार करने में कामयाबी मिली है। उन्होंने इसे सफलतापूर्वक चूहे में रीढ़ की चोट वाले स्थान पर प्रत्यारोपित किया। उनका कहना है कि इस तरीके से रीढ़ की चोट को ठीक किया जा सकता है।

शोधकर्ताओं के अनुसार, न्यूराल स्टेम सेल्स से भरे इस थ्रीडी-प्रिंटेड स्पाइनल कॉर्ड के प्रत्यारोपण से चोट वाले स्थान पर नर्व यानी तंत्रिका की उत्पत्ति को बढ़ाया मिला। इससे उस हिस्से की कार्य करने की क्षमता फिर दुरुस्त हो गई। (प्रेट्र)

Heart Disease (The Asian Age:20190116)

<http://onlinepaper.asianage.com/articledetailpage.aspx?id=12271323>

Less than 6 hours of sleep at night ups heart disease risk

Washington, Jan. 15: People who sleep less than six hours a night may be at an increased risk of cardiovascular diseases compared to those who sleep for seven to eight hours, according to a study.

The study, published in the *Journal of the American College of Cardiology*, found that poor quality sleep increases the risk of atherosclerosis — plaque buildup in the arteries throughout the body.

“Cardiovascular dis-

► **Cardiovascular disease is a major global problem. Poor quality sleep increases the risk of atherosclerosis of the body**

ease is a major global problem, and we are preventing and treating it using several approaches, including pharmaceuticals, physical activity and diet,” said Jose M Ordovas from the Centro

Nacional de Investigaciones Cardiovasculares Carlos III (CNIC) in Spain.

“But this study emphasizes we have to include sleep as one of the weapons we use to fight heart disease — a factor we are compromising every day,” said Ordovas, who is also associated with Tufts University in the US. This is the first study to show that objectively measured sleep is independently associated with atherosclerosis throughout body. — *PTI*

Congenital Central Hypoventilation Syndrome

CCHS: What makes sleep deadly in this rare disease? (The Indian Express:20190116)

<https://indianexpress.com/article/explained/congenital-central-hypoventilation-syndrome-what-makes-sleep-deadly-in-this-rare-disease-5540257/>

Those suffering from the disease, called Congenital Central Hypoventilation Syndrome (CCHS), can lose their life if they fall into deep sleep. A look at how it affects the body.

Congenital Central Hypoventilation Syndrome: What makes sleep deadly in this rare disease?

An infant under treatment at Delhi's Sir Ganga Ram Hospital is suffering from a rare disease (The Indian Express, January 15), with less than 1,000 known cases all over the world. Those suffering from the disease, called Congenital Central Hypoventilation Syndrome (CCHS), can lose their life if they fall into deep sleep. A look at how it affects the body:

The disease

CCHS is a disorder of the nervous system in which the cue to breathe is lost when the patient goes to sleep. This results in a lack of oxygen and a build-up of carbon dioxide in the body, which can sometimes turn fatal. In babies such as Yatharth, who is admitted in Sir Ganga Ram Hospital, a typical presentation of the lack of breathing is when the lips start turning blue. This, in turn, is a typical feature of a carbon dioxide build-up, and is also seen in babies with congenital heart problems when the extremities of the body are deprived of oxygen. Though the name describes the disorder as congenital, some forms of the disease may also be present in adults. In fact, adult onset is far more common than congenital presentation; there have been many adult cases reported in medical journals over the years.

The disease is also known as Ondine's Curse. Ondine, a nymph in French mythology, had cursed her unfaithful husband that he would forget to breathe the moment he fell asleep. He had, in happier times, pledged his love "every waking breath".

The cause

The mutation of a gene called PHOX2B, which is crucial for the maturation of nerve cells in the body, can cause CCHS. The mutation is of a dominant trait — if just one of the gene pair changes, the effects would show. It can also be genetically acquired, which is when it is congenital. However, sudden mutation is more common than a transmission of the mutated gene from parent to child. The US National Institutes of Health (NIH) estimates that 90% of all known cases of CCHS are actually not inherited from a parent.

The symptoms

Apart from the apparent signs of oxygen deficiency, CCHS patients also have problems in regulation of heart rate and blood pressure, sweat profusely, often have constipation and cannot always feel pain. Many of them suffer from neural tumours. In some patients, there are ophthalmological symptoms. In others, there is a deficiency of the growth hormone and a propensity of the body to produce much more insulin than is normal.

Treatment

According to NIH, "Treatment typically includes mechanical ventilation or use of a diaphragm pacemaker. People who have been diagnosed as newborns and adequately ventilated throughout childhood may reach the age of 20 to 30 years, and can live independently. In the later-onset form, people who were diagnosed when they were 20 years or older have now reached the age of 30 to 55 years."

In Yatharth's case, the surgery that has been prescribed proposes to put a diaphragm pacemaker that can nudge the body into remembering to breathe. It will cost Rs 38 lakh which, his patients say, they cannot afford.

Drug Addiction

De-addiction centre's scary numbers (The Tribune:20190116)

<https://www.tribuneindia.com/news/nation/de-addiction-centre-s-scary-numbers/714343.html>

4,000 tablets an hour sales of habit-forming drug in Tarn Taran alone

De-addiction centre's scary numbers

A small de-addiction centre in Tarn Taran registered an hourly sale of 4,000 tablets of de-addiction drug buprenorphine, according to a report prepared by Punjab's Food and Drug Administration — a pointer to the level of dependency on the habit-forming combination of buprenorphine and naloxone, and the unchecked sale.

The Sankalap Drug Dependence Treatment Centre in Tarn Taran dispensed over 50 lakh tablets in just six months between January and June last year. As per rules, one patient cannot be given a dose for more than a week in a single visit. So, to dispense 50 lakh tablets, the centre was required to have examined 1,300 patients a day. Doctors, however, point out it is difficult to examine more than 100 patients daily for a doctor. Hence, the figures clearly indicate that the centre was just acting as a bulk sale point for the medicine.

The Tarn Taran centre was not the only one dispensing the medicine at such a large scale. There are at least 10 centres in the state which dispensed more than 15 lakh tablets in just a year. The pace of sale mentioned in the report indicates a scam in the name of de-addiction.

Fears have already been expressed on how the misuse of the de-addiction drug is in itself leading to a new addiction in the state.

Under the Drug Policy 2017, the state government regulates the sale of six habit-forming drugs: Tramadol, Tapentadol, Codeine, Diphenoxylate, Alprazolam, Buprenorphine. The dose cannot be dispensed for more than seven days in a single visit. The state government has made it a standard practice, and even the PGI doctors follow the practice.

To evade the guideline, it is common practice with the centres to keep blank spaces in their indoor-patient registers.

Last year, in Mohali district alone, one centre which dispensed over 15 lakh tablets in a year was closed and two others are being investigated.

However, what has raised eyebrows is that de-addiction centres which dispensed much more medicines than in Mohali were not subjected to a similar investigation.

At present, there are 74 private de-addiction centres in the state, of which around 40 are controlled by two big businessmen with political connections.

Since de-addiction has emerged as a big business, it is alleged that the established players are blocking the new entrants. A query with the Health Department revealed that at least 20 applications of psychiatrists keen to open centres have been pending for several months.

FDA REPORT ON CENTRES	TABLETS SOLD IN LAKHS*
Sankalap Drug Dependence Treatment Centre, Tarn Taran	51.35
Mittal De-addiction Centre, Ludhiana	40.45
Sadhbhawna Hospital, Ludhiana	31.77
Aakash Hospital, Mohali	27.66
Aasra Manorog Hospital, Moga	24.32
Ekam Hospital, Moga	24.32
Neuro Psychiatry & Drug De-addiction Centre, Ludhiana	24.02
Sandesh Hospital, Ludhiana	18.77
Dr Sidhu De-Addiction Centre, Mohali	16.63
Disha Neuropsychiatry & Drug De-addiction Centre, Ludhiana	16.02
Hans Raj Multispeciality Hospital, Ferozepur	14.55

*TARN TARAN CENTRE FIGURES FOR JAN-JUN 2018; REST FOR ENTIRE 2018

<http://onlinepaper.asianage.com/articledetailpage.aspx?id=12271316>

3D-printed implant gives relief from spinal cord injuries

Los Angeles, Jan. 15: Scientists have used rapid 3D-printing technologies to create a spinal cord, then successfully implanted that scaffolding, loaded with neural stem cells, into sites of severe spinal injury in rats.

The implants, described in the journal *Nature Medicine*, are intended to promote nerve growth across spinal cord injuries, restoring connections and lost function.

In rat models, the scaffolds supported tissue regrowth, stem cell survival and expansion of neural stem cell axons out of the scaffolding and into the host spinal cord.

"In recent years and papers, we've progressively moved closer to the goal of abundant, long-distance regeneration of injured axons in spinal cord injury, which is fundamental to any true restoration of physical function," said Mark Tuszynski from the University of California (UC) San Diego in the US.

Axons are the long, threadlike extensions on nerve cells that reach out to connect to other cells.

"The new work puts us even closer to real thing because the 3D scaffolding recapitulates the slender, bundled arrays of axons in the spinal cord. It helps organise regenerating axons to replicate the anatomy of the pre-injured spinal cord," said Kobi Koffler from UC San

▶ In rat models, the scaffolds supported tissue regrowth, stem cell survival and expansion of neural stem cell axons out of the scaffolding and into the host spinal cord



Diego.

The researchers used rapid 3D printing technology to create a scaffold that mimics central nervous system structures.

"Like a bridge, it aligns regenerating axons from one end of the spinal cord injury to the other. Axons by themselves can diffuse and regrow in any direction, but the scaffold keeps axons in order, guiding them to grow," Chen said.

The implants contain dozens of tiny, 200-micrometre-wide channels (twice the width of a human hair) that guide neural stem cell and axon growth along length of spinal cord injury. — PTI

<http://onlinepaper.asianage.com/article/detailpage.aspx?id=12271322>

Contraceptives may soon be given via pain-free patch

Washington, Jan. 15: Scientists have designed a novel long-acting contraceptive that can be self-administered by women using a painless microneedle skin patch.

The research, published in the journal *Nature Biomedical Engineering*, may pave the way for a new family planning option, particularly in developing nations where access to healthcare can be limited.

Long-acting contraceptives now available provide the highest level of effectiveness, but usually require a healthcare professional to inject a drug or implant a device.

Short-acting techniques, on the other hand, require frequent compliance by users and therefore are often not as effective.

In animal testing, an experimental microneedle contraceptive patch provided a therapeutic level of contraceptive hormone for more than a month with a single application to the skin.

When the patch is applied for several seconds, the microscopic needles break off and remain under the surface



of the skin, where biodegradable polymers slowly release the contraceptive drug levonorgestrel over time.

Originally designed for use in areas of the world with limited access to health care, the microneedle contraceptive could potentially provide a new family planning alternative.

"There is a lot of interest in providing more options for long-acting contraceptives," said Mark Prausnitz, a professor at the Georgia Institute of Technology in the US.

"Our goal is for women to be able to self-administer long-acting contraceptives with the microneedle patch that would be applied to the skin for five seconds just once a month," Prausnitz said. — PTI

Physical Fitness (The Asian Age:20190116)

<http://onlinepaper.asianage.com/articledetailpage.aspx?id=12271324>

Staying fit reduces risk of heart attack

Washington, Jan. 15: According to a recent study, poor cardio respiratory fitness could increase the risk of a future heart attack, even if there are no symptoms of a lifestyle illness today.

The results of the study have been published in *European Heart Journal*.

"We found a strong link between higher fitness levels and a lower risk of heart attack and angina pectoris over the nine years following the measurements that were taken," said researcher Bjarne Nes. "Even among healthy people, the top 25 per cent of the fit individuals actually have only half as high a risk as the least fit 25 per cent," Nes added. — *Agencies*

Physical Fitness (The Asian Age:20190116)

<http://onlinepaper.asianage.com/articledetailpage.aspx?id=12271325>

To cut early death risk, move more

Houston, Jan. 15: Swapping just 30 minutes of sitting time with physical activity of any intensity or amount, may help reduce the risk of early death, a study claims.

The study highlights the importance of movement — regardless of its intensity or amount of time spent moving — for better health.

"Our findings underscore an important public health message that physical activity of any intensity provides health benefits," said Keith Diaz, assistant professor at Columbia University in the US.

About one in four adults spends more than eight hours a day sitting, researchers said. — *PTI*

Diet/ Nutrition (The Asian Age:20190116)

<http://onlinepaper.asianage.com/articledetailpage.aspx?id=12271330>



Nutritionist reveals foods to stop you from losing vision

Washington: It's long been said that carrots help people to see in the dark.

But the vegetable — and others — actually can have a positive effect on your overall eye health, according to a nutritionist. Sophie Bertrand, working alongside laser eye surgery hospital Optegra, has put together a list of the top foods that will help keep your eyes healthy. In her list, she reveals salmon can stave off

a leading cause of blindness, while green tea can protect against UV damage.

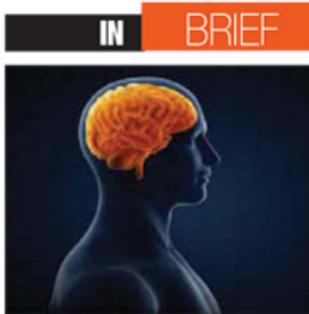
Research shows that a portion of oily fish a week can protect the eyes from a common cause of blurred vision in people aged 50-60

Dry macular degeneration is a common eye disorder among people over 65. It causes blurred or reduced central vision due to thinning of the macula, which is the part of the retina responsible for people's direct line of sight.

More than 1.75 million people suffer in the US. The condition's UK prevalence is unclear. The wet form of the disorder occurs due to leaking blood vessels under the retina and causes more sudden vision loss than the dry form. Dry macular degeneration develops gradually, affecting people's ability to do things, such as read, drive and recognise faces.

Avocados are packed with the antioxidants lutein and zeaxanthin and these reduce the amount of damaging light to the eye, therefore reducing the risk of AMD and cataracts, which are common in older adults. A study in France, found a strong connection

between a high level of zeaxanthin and reduced risk of age-related maculopathy — an eye disease with risk factors of high blood pressure, and a diet poor in antioxidant vitamins and minerals. — *Agencies*



Brain works backwards to retrieve memories

Washington: A new study, conducted at the University of Birmingham now says that when we remember a past event, the human brain reconstructs that experience in reverse order. The study adds that understanding how the brain retrieves information could help better assess the reliability of eye witness accounts.

The study, published in *Nature Communications*, was carried out by researchers in the Centre for Human Brain Health. They reconstructed the memory retrieval process, using brain decoding techniques that make it possible to track when in time, a unique memory is being reactivated in the brain. Researchers found that, when retrieving information about a visual object, the brain focuses first on the core meaning and only afterwards recalls more specific details. Notably, this is in sharp contrast to how the brain processes images when it first encounters them.

Speaking about it, lead author of the study, Juan Linde Domingo said, "We know that our memories are not exact replicas of the things we originally experienced." He further added, "Memory is a reconstructive process, biased by personal knowledge and world views — sometimes we even remember events that never actually happened. But exactly how memories are reconstructed in the brain, step by step, is currently not well understood." The study saw participants view images of specific objects .

— Agencies

Infanticide and female foeticide

‘Why force women to give birth to boys?’ asks Selfie with Daughter campaigner (Hindustan Times:20190116)

<https://www.hindustantimes.com/india-news/why-force-women-to-give-birth-to-boys-asks-selfie-with-daughter-campaigner/story-qNcEe4JjPplVJLMWLa4d7K.html>

Sunil Jaglan, a gender rights crusader and father of two girls raised awareness against infanticide and female foeticide, and worked tirelessly to expand the scope of his campaign.

Sunil Jaglan, who launched the Selfie with Daughter campaign, says he wants his two daughters, Nandini and Yashika, to grow up in a world that doesn't differentiate between men and women.

The nurse gave me the news in a hushed tone on the intervening night of January 24-25, 2012. These three magic words brought a wide smile to my face, and made me jump in joy. I couldn't make sense of the low-spirited reaction of the nurse. There was an air of despondency that she carried around herself, and I suspected that the news of my daughter's birth had something to do with it. While leaving the hospital, I gave her some money as a token of appreciation and asked her to distribute sweets to the hospital staff. The nurse refused to accept the money. She said that she'd be scolded by the doctor for accepting money at the birth of a daughter.

“I would have happily accepted the money if the baby was a boy. Since it's a girl, I can only take a little amount,” she told me. The birth of a boy in Haryana is celebrated by what is traditionally known as thali bajana — a ritual of beating a plate. Neighbours and relatives were shocked when my sister marked my daughter's birth with the ritual traditionally reserved for a son's birth.

When I went to distribute sweets among colleagues, everyone assumed that I had had a son.

I was quite shaken. The same day, I decided to check the sex ratio of my village and was left disappointed by the abysmal number. It was for the first time that the gravity of the situation struck me. While I had heard about these biases, I was never affected by them personally. My family was fairly progressive and these regressive notions never shaped my world view. It was only after my daughter Nandini's birth that I was confronted with this ugly truth. I decided to do something to improve the situation, and approached the women of the village, asking them to share their experiences about the issue of female foeticide. They were, however, reluctant to even enter the chaupals. Traditionally, chaupals have been male-dominated spaces, and convincing women to occupy them proved to be a challenging task.

Many women backed out. Men from the village asked me to make women from my family volunteer. To allay their concerns, I convinced my sister Ritu to step forward. She was the

first woman to speak at the forum and, seeing her, many others stepped in. For all my good intentions, I was aware that taking women into confidence was going to be a challenge. I got in touch with around 12-15 older women, and got them each to convince two more women to join us. Gradually, the message spread and more women joined our campaign.

After much coaxing, I was able to hold the country's first ever chaupal around the issue of female foeticide. During my interactions with women, I learnt about the pressure that they faced from men in their families. They told me how family and society exerted insurmountable pressure on them to give birth to a boy.

The prejudice against girls was deep-seated. I decided to reach out to the khaps, hoping to gather their support for my cause. Khaps are influential bodies in northern India and their word carries weight. I called a maha khap panchayat where leaders from Rajasthan, UP, and other states came together. For the first time in my village, a khap panchayat was being held, and that too, with a difference. It was an unprecedented event — women were sharing and speaking from the same stage as the khap leaders.

Over the next few months, I initiated different campaigns with the aim of creating awareness about female foeticide, infanticide, and discrimination against the girl child. As the sarpanch of Bibipur, I also announced that women would get to decide how half the panchayat funds would be spent. This motivated them to take ownership and participate more in the campaigns.

I was aware that campaigns like these couldn't stay confined to only one village. With the aim of expanding the scope of these programmes, I began to mobilise women in my village and convinced them to travel with me to other villages where they could spread awareness about gender rights. These initiatives didn't go down well with the people of my village. Many people complained against me and opposed my efforts. Men from the village stopped our caravan and deflated the tyres of our buses. "He will mislead our women and encourage them to misbehave," they said.

In 2015, I started a Selfie with Daughter campaign which found a mention in the Prime Minister's monthly radio address. I launched the campaign on June 19, my birthday, by posting a selfie with my daughter Nandini. Selfies poured in, not just from Bibipur and other places in Haryana, but also from states across India and countries across the globe. Many people demonise social media, but through it, I was able to create awareness about these issues. I was called by the former president, Pranab Mukherjee, who invited me to talk about the campaign. I gave him an insight into how the campaign had become a cry for women's empowerment.

I wasn't always a crusader for gender rights. I was unfamiliar with the phrase female foeticide till I'd completed my master's degree. Even at the time of contesting elections for the post of sarpanch, development was my only focus. However, I was always inspired by the struggles of my father, who was a government school teacher and wanted me to give back to society. He would often tell us how there were fewer girls in schools or how they never got

the same opportunities as boys. These stories never quite left me, and when the time came to make a change, I knew that I had to rise to the occasion and do my bit.

At the time of my daughter's birth in 2012, there were 37 girls in Bibipur for 59 boys. A lot needs to change. There is scope for improvement on the ground. I visit villages across Haryana to spread the message of women's empowerment. In each village, I make a team of women called Team Lado. Over the coming three or four years, my plan is to take this campaign to the national level. There are more than 700 districts in the country and my dream is to have a Team Lado in each district. The larger goal is to mobilise these teams to usher in a revolution in all corners of the country.

The country may have gained independence in 1947 but its women still long for freedom. I want my two daughters, Nandini and Yashika, to grow up in a world that doesn't differentiate between men and women. My daughters understand what I do, and hopefully, in the days to come, they'll carry forward my message and help women reclaim the freedom that is rightfully theirs.

Breast Cancer

Breast cancer: Changing tumor cells into fat cells stops spread (Medical News Today:20190116)

<https://www.medicalnewstoday.com/articles/324189.php>

Scientists have developed a novel drug combination that makes invasive breast cancer cells transform into fat cells. The treatment prevented metastasis in mice.

New research in mice finds a way to stop breast cancer from spreading.

Metastasis is the process through which cancer cells escape from primary tumors and grow new tumors, or metastases, in other parts of the body. It is the leading cause of death from cancer.

An enabler of metastasis is the innate ability of cancer cells to take on the properties of other cell types.

This "plasticity" allows them to transform from anchored cells into ones that can travel and invade other tissues.

Now, researchers at the University of Basel in Switzerland have found a way to use cell plasticity to stop metastasis in breast cancer.

Instead of allowing the breast cancer cells to grow and migrate, they forced them to become fat cells that do not divide or travel.

The journal *Cancer Cell* has recently published a paper about the research.

"In future," says senior study author Gerhard Christofori, who is a professor in the Department of Biomedicine, "this innovative therapeutic approach could be used in combination with conventional chemotherapy to suppress both primary tumor growth and the formation of deadly metastases."

Metastasis and cell plasticity

The complex process of metastasis comprises a sequence of steps that scientists often refer to as the "metastatic cascade."

There are three main stages in the cascade: invasion, in which cancer cells detach from the primary tumor environment; intravasation, in which the cells enter blood vessels; and extravasation, in which they exit blood vessels.

Primary breast cancer can 'shut down its own spread'

The discovery that primary tumors have the ability to stop invasive cells from escaping and migrating could lead to new cancer treatments.

Cancer cells take on different properties to complete each of these stages.

In the first stage, for example, the cells lose their ability to stick to each other and their surroundings, allowing them to detach from the primary tumor tissue.

In the case of breast cancer, and other cancers that arise in the epithelium, doctors refer to the change that the tumor cells undergo during metastasis as the epithelial-mesenchymal transition (EMT).

EMT also occurs in the developing embryo. In cancer, however, EMT does not help to form new organs but new tumors.

Breast cancer cells take properties of fat cells

Among women, cancer of the breast is the most common cancer and is responsible for most deaths that doctors relate to the disease.

Estimates from the World Health Organization (WHO) suggest that around 2.1 million women receive a diagnosis of breast cancer every year. These also suggest that 627,000 women died of the disease in 2018.

The vast majority of breast cancer deaths are due to cancer spreading locally and setting up new tumors in other parts of the body.

Prof. Christofori and his team investigated the EMT molecular processes that enhance plasticity in breast cancer cells to enable metastasis.

Using human cells and mouse models, they found that they could exploit this plasticity and force the cancer cells to turn into fat cells with a particular combination of compounds.

The newly-formed fat cells were very similar to normal fat cells and were unable to divide and proliferate.

The authors note that this led to "repression of primary tumor invasion and metastasis formation."

The compounds in the combination were the diabetes drug rosiglitazone and trametinib, a drug that can stop the growth and spread of tumor cells.

The researchers also point out that, in many respects, because of their high plasticity, breast cancer cells resemble stem cells. Exploring these similarities could be a fruitful avenue for further research.

Sleep Disorder

A good night's sleep could lower cardiovascular risk (Medical News Today:20190116)

<https://www.medicalnewstoday.com/articles/324186.php>

Can the duration and quality of your sleep affect your cardiovascular health? A new study suggests there is a connection between how much sleep you get each night — and how well you sleep — and the risk of cardiovascular problems.

Are you getting enough sleep, and could this be affecting your cardiovascular health?

Many studies have emphasized the importance of sleep in maintaining our health and well-being in general. Increasingly, however, researchers are finding out how sleep quality affects specific aspects of a person's health.

For instance, one recent study that was covered by Medical News Today found that poor sleep could well be a telltale sign of the development of Alzheimer's disease. Another study tied sleep problems with high blood pressure, at least in women.

Now, research from the Centro Nacional de Investigaciones Cardiovasculares Carlos III in Madrid, Spain, and Tufts University — with campuses in Medford and Somerville, MA — indicates that there is a link between sleep quality and the risk of atherosclerosis, a condition that doctors characterize by plaque buildup in the arteries.

"Cardiovascular disease is a major global problem, and we are preventing and treating it using several approaches, including pharmaceuticals, physical activity, and diet," says the new study's senior author, Dr. José Ordovás.

"But this study emphasizes we have to include sleep as one of the weapons we use to fight heart disease — a factor we are compromising every day," Dr. Ordovás explains.

The research team's findings now appear in the *Journal of the American College of Cardiology*.

All about sleep duration and quality

The researchers analyzed the medical data of 3,974 individuals who averaged 46 years of age, were based in Spain, and who took part in the Progression of Early Subclinical Atherosclerosis (PESA) study.

Essentially, PESA recorded the prevalence and rate of progression of vascular problems that were not yet clinically relevant in the participants. None of the PESA-sourced volunteers had a diagnosis of heart disease at baseline, and two-thirds of them were male.

Besides allowing doctors to assess their vascular lesions, the participants also agreed to wear a sleep actigraph — a device that helps record a person's sleep patterns — for a period of 7 days.

What too much sleep can do to your health

Will too much sleep harm your health?

Using the actigraph results, the researchers split the participants into four distinct groups:

people who slept under 6 hours per night

people who slept 6–7 hours per night

people who slept 7–8 hours each night

people who slept longer than 8 hours.

All the participants also had 3-D heart ultrasounds, as well as cardiac CT scans, to check for the presence of heart disease. Moreover, the 3-D heart ultrasounds also measured atherosclerosis throughout the body.

The study found that — after the exclusion of other risk factors for heart disease — participants who slept under 6 hours every night had a 27 percent increase in the risk for atherosclerosis when the researchers compared them with people who slept between 7 and 8 hours each night.

Poor sleep quality — for instance, waking up often during the night — was associated with similar outcomes, increasing atherosclerosis risk by 34 percent.

Some researchers have emphasized that, even if you do end up sleeping less time, the quality of that sleep will have a noticeable impact on your health.

"It is important to realize that shorter sleep duration that is of good quality can overcome the detrimental effects of the shorter length," notes Dr. Valentin Fuster who is editor-in-chief of the Journal of the American College of Cardiology, in which the current study appears.

Intriguingly, the study also found some evidence that people who slept more than 8 hours per night — especially women — also had a heightened risk of atherosclerosis, though few people reported overly long slumber times.

The first study of its kind

The study researchers also noted that participants who reported getting less sleep each night were more likely to drink more caffeinated and alcoholic drinks.

"Many people think alcohol is a good inducer of sleep, but there's a rebound effect," explains Dr. Ordovás. "If you drink alcohol," he adds, "you may wake up after a short period of sleep and have a hard time getting back to sleep. And if you do get back to sleep, it's often a poor-quality sleep."

As for the effects of coffee, the study's senior author notes that these are, most likely, down to an individual's genetic makeup, and how their body breaks down caffeine.

"Depending on your genetics, if you metabolize coffee faster, it won't affect your sleep, but if you metabolize it slowly, caffeine can affect your sleep and increase the odds of cardiovascular disease," he notes.

Dr. Ordovás believes that the current study is more accurate than previous efforts to map out the relationship between sleep and cardiovascular risk.

For one, the current study was larger than previous research. Most importantly, it reported on actigraph data to determine sleep patterns, rather than on self-reports from participants, which are subjective and can be unreliable.

"What people report and what they do are often different," Dr. Ordovás points out.

"This is the first study to show that objectively measured sleep is independently associated with atherosclerosis throughout the body, not just in the heart."

Dr. José Ordovás

Osteoporosis

Osteoporosis breakthrough: Bone mass increased by 800 percent (Medical News Today:20190116)

<https://www.medicalnewstoday.com/articles/324162.php>

A groundbreaking set of studies has found that blocking certain receptors in the brain leads to the growth of remarkably strong bones. Could a new osteoporosis treatment be on the horizon?

Osteoporosis most commonly affects older women.

Primarily a disease of old age, osteoporosis can cause bones to become gradually weaker.

Over time, bones become so porous that minor impacts — even just a cough or a sneeze — might cause fractures.

According to the Centers for Disease Control and Prevention (CDC), osteoporosis affects almost 1 in 4 women aged 65 and over in the United States.

As it stands, there is no cure; treatment focuses on reducing the risk of fractures but cannot slow the condition's progression.

In a healthy person, the body breaks down old or damaged bone and replaces it with new bone.

However, as we age, this cycle becomes off-kilter, and the body breaks down more bone than can be remade. This leads to progressively weaker bones and, eventually, osteoporosis.

A new role for estrogen

Estrogen has a wide range of functions in the human body, particularly regarding reproduction. The hormone also works in the brain, but scientists currently know little about its functions there.

Recently, scientists from the University of California, San Francisco and the University of California, Los Angeles ran a series of studies to learn more about estrogen in the brain.

Osteoporosis: Could probiotics protect bone health?

According to a recent study, probiotics could be an effective tool to help fight bone loss.

Along the way, they made a serendipitous discovery that could change the face of osteoporosis research.

Led by senior study author Holly Ingraham, Ph.D., the researchers were primarily interested in how estrogen's activity in the brain alters metabolism during different stages of life.

In particular, they were looking at the function of estrogen-sensitive neurons in the hypothalamus. This is a part of the brain that links the nervous system to the endocrine (hormone) system.

The hypothalamus plays an important role in regulating metabolic processes, such as by helping control body temperature, hunger, sleep, fatigue, and circadian rhythms.

Blocking estrogen in the brain

The scientists blocked the effects of estrogen in the hypothalamus of animals. When they did this, the animals gained weight and became less active.

Initially, the scientists assumed that the additional weight would be accounted for by extra fat or muscle tissue.

However, upon further inspection, they found that the extra weight was due to increased bone mass. Some of the animals had increased their total bone mass by 800 percent.

"I was immediately struck by the size of the effect. The two groups didn't overlap at all, which I had never seen. We knew right away it was a game changer and a new, exciting direction with potential applications for improving women's health."

Researcher Stephanie Correa, Ph.D.

When the investigators tested the dense mouse bones, they found that they were also particularly strong. In fact, according to Ingraham:

"Our collaborators who study bone for a living said they'd never seen bone this strong."

They have now published their findings in the journal *Nature Communications*. As Ingraham goes on to say, "Our current understanding of how the body controls bone growth can't explain this."

"[This] suggests," she adds, "we may have uncovered a completely new pathway that could be used to improve bone strength in older women and others with fragile bones."

In follow-up studies, the researchers focused on a particular region of the hypothalamus that seemed to be having this incredible effect on bone: the arcuate nucleus.

Since removal of estrogen receptors in this region causes bone growth, they believe that normally, these cells siphon energy and resources away from bone growth to be used elsewhere in the body.

This finding is exciting and surprising and only appeared in female mice.

"Most neuroscientists limit studies to male mice, and few study estrogen, which may explain why this had never been seen before." Holly Ingraham, Ph.D.

She continues, "I've always been interested in how sex hormones make male and female brains different, and this is a really wonderful example of how dramatic those differences can be."

Continuing the search

The researchers extended their experiments to understand how bone density changed during the lifespan of a mouse. They noticed that bone density in these mice was maintained throughout old age.

Testing this mechanism further, the scientists deleted the arcuate estrogen receptors in a mouse model of osteoporosis. In mice that had lost 70 percent of their bone mass, bone density rebounded by 50 percent in just a few weeks.

In the blood, estrogen promotes bone growth; in the hypothalamus, however, it appears to have the opposite effect.

Ingraham hypothesizes that "after puberty, the estrogen system in the female brain actively shifts resources away from bone growth and towards things like reproduction, which could contribute to women's higher risk of weakened bones as we age."

Since the results are surprising and novel, plenty more work will be needed; however, they have already opened some exciting new avenues for osteoporosis researchers.

"I'm in the clouds about this result," Ingraham says. "If our next experiments show that the brain releases a novel circulating factor that triggers enhanced bone growth, we might have a real chance of developing a drug that counteracts osteoporosis."