



## DAILY NEWS BULLETIN

LEADING HEALTH, POPULATION AND FAMILY WELFARE STORIES OF THE DAY  
Friday 20190920

### कुपोषण

पौष्टिकता बने अर्जेंडा (Navbharat Times: 20190920)

<http://epaper.navbharattimes.com/details/60948-58278-2.html>

यह वाकई चिंता का विषय है कि भारत में आज भी पांच साल से कम आयु के 68 फीसदी बच्चों की मौत कुपोषण से हो रही है। ऐसा तब है जबकि कुपोषण से होने वाली मौत में काफी कमी आई है। इंडियन काउंसिल ऑफ मेडिकल रिसर्च (आईसीएमआर) की एक रिपोर्ट में यह जानकारी दी गई है। इसके मुताबिक 1990-2017 के बीच कुपोषण से होने वाली मौत में दो-तिहाई की कमी आई है। प्रायः सभी राज्यों में बच्चे कुपोषण का शिकार हैं। कुपोषण की वजह से कई बीमारियों का खतरा बना रहता है। कम वजन वाले बच्चों में करीब 47 फीसदी का मानसिक व शारीरिक विकास मंद गति से हो रहा है। कुपोषण का सीधा संबंध गरीबी से है। गरीब तबके के लिए रोज किसी तरह पेट भर लेना ही बड़ी बात है, पोषण युक्त भोजन उसकी पहुंच से अब भी दूर है। अब भी 30 फीसदी गरीब प्रति दिन निर्धारित 2155 किलो कैलोरी की तुलना में केवल 1811 किलो कैलोरी का भोजन ही कर पाते हैं। यह असमानता बच्चों में अधिक है। चूंकि निर्धन महिलाओं को उचित आहार नहीं मिल पाता, खासकर गर्भावस्था के दौरान पौष्टिक भोजन की व्यवस्था नहीं हो पाती। प्रायः उनमें खून की कमी रहती है। इस तरह उनके बच्चे कमजोर पैदा होते हैं। इन्हें बड़े होने पर भी समुचित भोजन नहीं मिल पाता। इस तरह कुपोषण पीढ़ी दर पीढ़ी चलता रहता है। सरकार ने गरीबों के लिए जो योजनाएं चलाई हैं, उनका मकसद भी गरीबों का पेट भरना भर ही है। ज्यादातर राज्यों में जन वितरण प्रणाली के तहत केवल चावल या गेहूं दिया जाता है,

जिससे खाद्य सुरक्षा जरूर सुनिश्चित हुई है लेकिन पोषण की समस्या दूर नहीं हो सकी। वैसे पोषण को लेकर योजनाएं शुरू हुई हैं लेकिन उन पर खर्च होने वाली राशि अब भी बेहद कम है। छोटे बच्चों पर केंद्रित मुख्य योजना है समेकित बाल विकास सेवा, जिसका उद्देश्य 6 वर्ष से कम उम्र के बच्चों को पूरक पोषाहार, स्वास्थ्य सुविधा और स्कूल पूर्व शिक्षा उपलब्ध कराना है। चूंकि बच्चों की जरूरतें अपनी मां से अलग पूरी नहीं हो सकतीं इसीलिए कार्यक्रम में महिलाओं को भी सम्मिलित किया गया है। कार्यक्रम को अमल में लाने के लिए आंगनवाड़ियों का एक नेटवर्क तैयार किया गया है। करीब 1000 की जनसंख्या (लगभग 200 परिवार) पर एक आंगनवाड़ी होती है। लेकिन अन्य योजनाओं की तरह इसमें भी भ्रष्टाचार का घुन लगा हुआ है। आए दिन देश के अलग-अलग इलाकों से इसमें घोटालों की खबरें आती रहती हैं। कई जगहों पर तो आंगनवाड़ियां हैं ही नहीं या कागज पर चल रही हैं। बच्चों में बांटे जाने वाले खाद्य पदार्थ की खरीद में भी अनियमितता की शिकायत मिलती है। इस योजना की सख्त निगरानी की जरूरत है। बच्चों के अलावा भी सारे निर्धनों को कैसे पोषण युक्त आहार मिले, इस पर सोचने की जरूरत है। भूख पर हमने लगभग जीत पा ली है। अब अजेंडे पर पौष्टिकता को लाना होगा।

आईसीएमआर की रिपोर्ट

## मां की सांसों से गर्भ में बच्चे तक पहुंच रहा प्रदूषण

एनबीटी, नई दिल्ली : वायु प्रदूषण से लोगों को ही नहीं गर्भ में पल रहे बच्चे को भी नुकसान पहुंच रहा है। वैज्ञानिकों ने पता लगाया है कि

गर्भनाल के जरिए हानिकारक तत्व मां से बच्चों तक पहुंच रहे हैं। शोध में सामने आया कि प्रदूषित इलाकों की 28 गर्भवती महिलाओं की गर्भनाल में



ब्लैक कार्बन पाया गया। ब्लैक कार्बन पेट्रोल-डीजल, लकड़ी, कोयला जैसे ईंधनों के जलने से पैदा होता है। वैज्ञानिकों ने पाया कि प्रदूषित इलाकों में रहने वाली महिलाओं की गर्भनाल में इसकी मात्रा ज्यादा थी। गर्भ में पल रहे शिशु को ऑक्सिजन और पोषक तत्व पहुंचाती है। इससे समय से पहले जन्म या अन्य समस्याएं सामने आ सकती हैं।

## केमिकल वैक्स

**चमकते सेब से लिवर और किडनी कैंसर का खतरा, रहें सावधान (Navbharat Times: 20190920)**

<https://navbharattimes.indiatimes.com/lifestyle/recipe/wax-coating-bright-apple-causes-liver-and-kidney-cancer-be-alert/articleshow/71211957.cms>

बाजार में सेब खरीदने जाएं और एकदम लाल और बेहद चमकते हुए सेब नजर आए तो उसे बहुत अच्छा समझकर खरीदने की भूल न करें। इन सेबों पर केमिकल वैक्स की मोटी परत चढ़ी होती है जो आपको कैंसर जैसी जानलेवा बीमारी दे सकते हैं।

कहते हैं हर चमकती चीज सोना नहीं होती वैसे ही हर चमकता सेब फायदेमंद नहीं होता। बाजार में बिकने वाले चमकदार सेबों पर केमिकल वैक्स की परत चढ़ाकर उन्हें बेचा जाता है और अगर आप इसकी सुंदरता के चक्कर में इसे अच्छा और साफ सुथरा मानकर खरीद रहे हैं तो यकीन मानिए आप अपनी सेहत से समझौता कर रहे हैं। सेब पर की जाने वाली यह केमिकल वैक्स की कोटिंग लिवर और किडनी पर असर डालती है जिससे कैंसर जैसी जानलेवा बीमारी भी हो सकती है।

इस तरह के केमिकल कोटिंग वाले सेब की बिक्री की रोकथाम के लिए कई बार अभियान चलाए जाते हैं पर कुछ दिन बाद बीमारी फैलाने वाले ये सेब फिर से बाजार में बिकने लगते हैं। हाल में इसकी चर्चा तब फिर शुरू हो गई जब केंद्रीय खाद्य और उपभोक्ता मामलों के मंत्री रामविलास पासवान ने बाजार से जो सेब मंगवाए थे उन पर केमिकल वाले वैक्स की मोटी परत चढ़ी मिली।

जान भी ले सकता है सेब का बीज, जानें कैसे

फल खराब होने से बचाने के लिए लगाते हैं वैक्स

फूड सेफ्टी ऐंड स्टैंडर्ड अथॉरिटी ऑफ इंडिया के डीओ पृथ्वी सिंह ने इस बारे में बताया कि वेजिटेबल वैक्स का फल सब्जियों पर प्रयोग किया जा सकता है। नियम के अनुसार नैचरल वैक्स व वेजिटेबल वैक्स का इस्तेमाल किया जा सकता है, लेकिन ज्यादातर दुकानदार केमिकल वैक्स का इस्तेमाल करते हैं, जो हमारी सेहत के लिए बेहद हानिकारक है। फल विक्रेताओं की मानें तो फलों को खराब होने से बचाने के लिए उस पर वैक्स कोटिंग का इस्तेमाल किया जाता है।

गर्म पानी से धोकर ही खाएं फल

सर्वोदय अस्पताल के विशेषज्ञ डॉ सुनील राणा ने बताया कि फल और सब्जियों पर लगा वैक्स शरीर के लिए नुकसानदेह होता है जिससे पेट से जुड़ी बीमारियां, लिवर व किडनी कैंसर भी हो सकता है। कई बार लोग वैक्स लगे फल व सब्जियों का सेवन कर लेते हैं, जिसके बाद वैक्स शरीर के अंदर जाकर कई अंगों में जम जाता है। लिहाजा फल व सब्जी का प्रयोग करने से पहले उन्हें करीब 15 से 20 मिनट तक गर्म पानी में रखें और फिर अच्छे से धोकर ही उनका खाने में इस्तेमाल करना चाहिए।

# शोर वाली जगहों पर स्ट्रोक का खतरा ज्यादा

लंदन | एजेंसी

एक शोध में पता चला है कि जो लोग शोर-शराबे वाले शहरी क्षेत्रों में रहते हैं, उनको जानलेवा मस्तिष्काघात (स्ट्रोक) होने की संभावना अधिक हो सकती है। शोध के मुताबिक, अधिक ट्रैफिक वाले क्षेत्रों में बेहद शोर की वजह से लोगों को तनाव होने लगता है और उनमें व्यायाम करने की संभावना भी कम होती है। जबकि हरियाली वाले क्षेत्रों के करीब रहने वाले लोगों में इस तरह का कोई खतरा नहीं होता।

**अध्ययन में स्पष्ट हुई ये बात:** स्पेन में 2,700 से अधिक लोगों पर एक अध्ययन किया गया। इसमें पाया गया कि जो लोग सबसे ज्यादा ट्रैफिक वाले क्षेत्रों में रहते हैं, उनको काफी शोर झेलना पड़ता है। इसके चलते उनमें स्ट्रोक का खतरा 30 फीसदी बढ़ने की संभावना रहती है। शोधकर्ताओं का कहना है कि शोर भरे क्षेत्रों में रहने वाले लोगों को अधिक तनाव होने या उच्च रक्तचाप होने की संभावना हो सकती है। इसके अलावा उनमें व्यायाम करने की संभावना भी कम हो सकती है। यह अध्ययन बार्सिलोना के हॉस्पिटल डेल मार मेडिकल रिसर्च इंस्टीट्यूट, अमेरिका की ब्राउन यूनिवर्सिटी और बार्सिलोना की अन्य यूनिवर्सिटी के शोधकर्ताओं ने किया है।

उन्होंने अध्ययन के लिए स्ट्रोक के 2,761 मरीजों के मेडिकल रिकॉर्ड और उनके निवास स्थान के पते का इस्तेमाल



## हरी जगहों पर रहना फायदेमंद

अध्ययन में स्ट्रोक और ट्रैफिक शोर के बीच एक मजबूत संबंध पाया गया। अध्ययन के मुताबिक, जिन लोगों के घर के आस-पास हरी-भरी जगह है, उन लोगों में गंभीर स्ट्रोक से पीड़ित होने की संभावना 25 प्रतिशत कम थी। शोधकर्ता डॉ. रोजा विवान्को-हिडाल्गो ने अपने शोधपत्र में यह नहीं स्पष्ट किया कि ध्वनि प्रदूषण कैसे स्ट्रोक का खतरा बढ़ा सकता है।

किया। यह अध्ययन 2005 से 2014 के बीच किया गया। इसमें ध्वनि प्रदूषण के अधिक स्तर के बीच रहने वाले लोगों में गंभीर स्ट्रोक का खतरा 30 प्रतिशत बढ़ा हुआ देखा गया।

## स्ट्रोक और ट्रैफिक शोर में दिखा

**संबंध:** अध्ययन के मुताबिक, ब्रिटेन में हर साल 1,00,000 से अधिक लोग स्ट्रोक के शिकार होते हैं और आज स्ट्रोक से जूझ रहे लगभग 12 लाख लोग जीवित बचे हैं, लेकिन यह मौत का एक प्रमुख कारण है। जबकि अमेरिका में हर साल तकरीबन 7,95,000 लोगों को स्ट्रोक होता है और उनमें से लगभग 1,40,000 लोगों की मौत हो जाती है।

# शरीर में मौजूद बुलबुलों से होगा कैंसर का इलाज

न्यूयॉर्क | एजेसी

शोधकर्ताओं ने हमारे शरीर में छोटे बुलबुलों की खोज की है, जिसका इस्तेमाल कैंसर के इलाज में किया जा सकता है। शोधकर्ताओं के अनुसार यह बुलबुले कीमोथेरेपी से बेहतर तरीके से कैंसर का इलाज कर सकते हैं।

**कोशिकाओं से निकलते हैं बुलबुले:** हमारे शरीर की स्वस्थ कोशिकाएं नैनो आकार के बुलबुले छोड़ती हैं जो डीएनए और आरएनए जैसे जेनेटिक पदार्थों को एक कोशिका से दूसरी कोशिका में ट्रांसफर करते हैं। डीएनए में महत्वपूर्ण जानकारीयां संग्रहित होती हैं जिसकी मदद से आरएनए प्रोटीन बनाते हैं और उनके ठीक से काम करने की निगरानी करते हैं। शोधकर्ताओं के अनुसार, इन छोटे बुलबुलों को एक्स्ट्रासेल्युलर वेसाइकिल (ईवी) कहा जाता है। इस इलाज को लक्षित स्थानों तक पहुंचाने

## अध्ययन

- कीमोथेरेपी से बेहतर तरीके से कैंसर का इलाज कर सकते हैं
- इलाज को लक्षित स्थानों तक पहुंचाने में मदद कर सकते हैं

के लिए ट्रांसपोर्टों के रूप में कार्य कर सकते हैं। यह छोटे बुलबुले कई तरह की दवाओं और कैंसर को निशाने बनाने वाले जीन को लेकर बीमारी जगहों पर आसानी से पहुंच सकते हैं और कैंसर की कोशिकाओं को मार सकते हैं।

**ट्यूमर को निशाना बना सकती हैं दवाएं :** मिशिगन स्टेट यूनिवर्सिटी के प्रोफेसर और प्रमुख शोधकर्ता मासामित्सु कनाडा ने कहा, हमने एंजाइम-उत्पादक जीन को वितरित करने के लिए एक चिकित्सीय तरीका ढूंढा है जो कुछ दवाओं को विषाक्त एजेंटों में बदलकर ट्यूमर को निशाना बना सकता है।

[http://epaper.livehindustan.com/imageview\\_261902\\_67250358\\_4\\_1\\_20-09-2019\\_20\\_i\\_1\\_sf.html](http://epaper.livehindustan.com/imageview_261902_67250358_4_1_20-09-2019_20_i_1_sf.html)

# ज्यादा भाषाओं के ज्ञान से तेज चलता है दिमाग

**नई दिल्ली ।** जहां एक तरफ सरकार एक राष्ट्र और एक राष्ट्रभाषा की बात कर रही है, वहीं प्रमुख चिकित्सा संस्थानों में काम करने वाले डॉक्टरों ने अपने एक शोध में पाया कि जितना ज्यादा लोगों को भाषाओं का ज्ञान होगा, उतना ही ज्यादा तेज उनका दिमाग चलेगा।

**मस्तिष्क की एकाग्रता बेहतर होती है:** स्वास्थ्य विशेषज्ञों का मानना है कि यदि कोई व्यक्ति दो से अधिक भाषाओं का जानकार है, तो मस्तिष्क के विभिन्न भाग सक्रिय हो जाते हैं जो मस्तिष्क की बेहतर एकाग्रता और विकास में मदद करते हैं। कई अंतरराष्ट्रीय अध्ययनों ने साबित किया है कि दूसरी भाषा सीखने से मस्तिष्क के संज्ञानात्मक कार्यों को बेहतर बनाने में मदद मिलती है। यह पता चला कि दो भाषाओं में पारंगत होने वाले वयस्कों ने ध्यान परीक्षणों में बेहतर प्रदर्शन किया और उन लोगों की तुलना में बेहतर एकाग्रता दिखाई, जो केवल एक ही भाषा बोलते थे। **(एजेसी)**



## **E-cigarettes**

### **Vapourised (The Indian Express: 20190920)**

<https://indianexpress.com/article/opinion/editorials/e-cigarettes-ban-smoking-vaping-6011332/>

Ban on e-cigarettes smacks of hypocrisy and an arbitrary exercise of executive authority

“Vaping” is as much a social and cultural phenomenon as it is a public health issue.

Smoking is injurious to health, and the use of tobacco products has been linked to a host of diseases, including various cancers and cardiovascular ailments. According to WHO, tobacco causes over 10 million deaths annually in India. In the US, the figure stands at 4,80,000. “Vaping”, or the use of e-cigarettes (called ENDS or Electronic Nicotine Delivery Systems), has resulted so far in seven confirmed deaths in the US. Cigarettes, chewing tobacco and related products continue to be legal in India, and through being heavily taxed as well as via the government’s stake in domestic tobacco giants, significantly add to the earnings of the exchequer. However, on Wednesday, the Union government announced an ordinance banning ENDS. In terms of first principles as well the purported concern for citizens’ health, the ban on e-cigarettes smacks of hypocrisy and an arbitrary exercise of executive authority.

The Promulgation of the Prohibition of Electronic Cigarettes Ordinance provides for imprisonment of up to one year and/or fines up to Rs 1 lakh for the first offence, imprisonment of up to three years and a fine up to Rs 5 lakh for a subsequent offence. Those possessing ENDS must suo motu turn them over at the local police station, else face the harsh consequences of the executive decree. Meanwhile, the tobacco industry has welcomed the move and share prices of ITC and VST Industries registered a sharp increase in the wake of the ban. In the worst-case scenario, vaping will be as bad as smoking. And like cigarettes, ENDS must be regulated, come with health warnings, not be sold to minors, etc. Like other “sin goods”, they can be taxed to the point of disincentivising their use. By banning ENDS and maintaining the status quo on tobacco products, the government is in danger of giving the impression that it is protecting the tobacco industry’s interests against a disruptor in that market.

The e-cigarette ban is a symptom of a larger malaise — governing by the brute force of a hammer when the subtlety of a scalpel is required. “Vaping” is as much a social and cultural phenomenon as it is a public health issue. For older smokers, it can offer a path to quitting and for the youth, it can be aspirational. That the Centre has refused even to engage with this aspect, and, instead moved to push vaping underground by banning it shows laziness in engaging with a complex problem. Prohibition does not work. A conversation about the reasons for addiction just might.

## **Eighth death in illness tied to e-cigarettes in US (The Indian Express: 20190920)**

<https://indianexpress.com/article/world/eighth-death-in-illness-tied-to-e-cigarettes-in-us-6012277/>

During a news briefing, Dr Anne Schuchat, principal deputy director of the CDC, said officials expect more deaths because some people are suffering from severe lung illnesses.

A man smokes an electronic cigarette in Chicago. North Carolina's top prosecutor expanded his efforts to halt e-cigarette sales to teens on Monday. (AP Photo/Nam Y. Huh, File)

The number of vaping-related lung illnesses has risen to 530 probable cases according to an update Thursday by the Centers for Disease Control and Prevention, and a Missouri man became the eighth to die from the mysterious ailments.

During a news briefing, Dr Anne Schuchat, principal deputy director of the CDC, said officials expect more deaths because some people are suffering from severe lung illnesses.

But US public health officials said they still were unable to pinpoint the cause, or causes, of the sicknesses that have resulted in hundreds of hospitalizations, with many in intensive care units.

Schuchat said some patients are on ventilators and therefore are unable to tell investigators what substances they vaped. "I wish we had more answers," she said.

The CDC provided the first demographic snapshot of the afflicted: Nearly three-quarters are male, two-thirds between 18 and 34, and 16% are 18 or younger. "More than half of cases are under 25 years of age," Schuchat said.

Illnesses have now been reported in 38 states and one U.S. territory.

In the most recent case, in St. Louis, officials said Thursday that a man in his mid-40s who had chronic pain had begun vaping in May. He was hospitalized Aug. 22 with respiratory problems and died Wednesday.

<http://onlinepaper.asianage.com/articledetailpage.aspx?id=13792536>

## E-cigarette ban not enough

**T**he e-cigarette ban may stem the spread of vaping as an epidemic among youth, the group most vulnerable to addictive substances. E-cigarettes come in handy sizes that are easy to hide, enabling students to cheat parents and teachers. As a stand-alone measure to address a problem, India's ban must be lauded. But far more harmful substances like tobacco and gutka are still freely available. Users may have been told these substances are carcinogenic, but awareness is one thing, availability quite another. Big Tobacco, like Big Pharma, lives by its own rules. The tobacco lobby can steamroll past obstacles to keep the multi-billion dollar trade intact, despite restrictive curbs like graphic pictorial warnings and brand-less packaging.

The revenue the tobacco industry generates far outstrips the "sin taxes" imposed by governments. E-cigarettes are just another, if sophisticated, form of marketing addictive nicotine, for which users were used to burning paper, leaf and tar in cigarettes and bidis, considered more harmful than the alkaloid. "Cancer cures smoking" was a catchy slogan to dissuade smokers, of whom countless millions died from cancer or lung illnesses. But no government in the world has been able to rein in tobacco farmers or manufacturers. Indians are exposed to the greater hazards of gutka and pan masala. Even in a state like Tamil Nadu, where gutka was banned, a corruption scandal involving thousands of crores was exposed, but that didn't stop it from reaching users/abusers. Narcotics may predate tobacco as the original destroyers of the human body and soul, but tobacco has had an extended run and opioids are challenging them for destructive space. Banning e-cigarettes is just a fig leaf — of acting for the public good over substances that kill.

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## Smoking

### Govt mulls raising age for tobacco use to 21 (The Tribune: 20190920)

<https://www.tribuneindia.com/news/nation/govt-mulls-raising-age-for-tobacco-use-to-21/835185.html>

Health Ministry considering changes to COTPA, wants to table amended Bill in next House session

After promulgating the ordinance to ban e-cigarettes, the government is pursuing to raise the legal age for tobacco consumption from the current 18 years to 21.

The Health Ministry is currently working on comprehensive amendments to the Cigarettes and Other Tobacco Products (Prohibition of Advertisement and Regulation of Trade) Act, 2003, the national anti-tobacco legislation. The aim is to introduce the amendment Bill in the next session of Parliament.

Sources said the exercise was being undertaken to make the Indian anti-tobacco law fully compliant with the UN Framework Convention on Tobacco Control to which India is a signatory.

Other changes to COTPA being mulled are ban on the sale of loose cigarette sticks, at least a five-fold hike in fine for smoking in public places (from the current Rs 200 to Rs 1,000), making offences under the law cognisable and imposing a ban on advertisement of tobacco on points of sale such as kiosks.

Amendments to COTPA were attempted in 2015 also when the government had constituted a high-level committee to suggest changes. When that Bill was placed in public domain, the ministry received 10,000 emails plus written responses to the extent that it had to hire people to sift through those. “Even storage of public responses has become a challenge. We had 60 sacks of written responses,” said a source adding that the exercise was severely impeded at that time.

There is now a fresh push to address tobacco use with the new National Health Policy identifying the area as one of the seven priority sectors. The government last year also constituted a Nasha Mukti Taskforce to review regulatory provisions around all forms of tobacco — smokeless and smoking.

The groundwork for amendments to COTPA is already available with the 2015 high-level government committee having studied the subject deeply. The committee has wanted the legal age for tobacco consumption in India raised from 18 to 25 years. “There is thinking in the government that the legal age for tobacco use should be raised to least 21 years,” a source said.

Drop in no. of users

10% of Indian population smokes cigarettes

Percentage of users has declined by six between 2009 and 2016, according to the Global Adult Tobacco Survey for India

As of 2016, 28.6 per cent Indians used tobacco in some form. Of these, 70 per cent used chewing tobacco

Amendments...

Ban on the sale of loose cigarette sticks

Rs 1,000 fine on smoking in public places

Making offences under the law cognisable

Ban on advertisement of tobacco on points of sale

## **Climate Change**

**India to review impact of climate change on subcontinent by 2020 (Hindustan Times: 20190920)**

<https://epaper.hindustantimes.com/Home/ArticleView>

New Delhi: India will conduct a national review in the coming months, modelled on the assessment done by the Intergovernmental Panel on Climate Change (IPCC), to determine the impact of a warming climate on the subcontinent.

The national assessment, commissioned by the ministry of earth sciences (MoES), will be published every five to six years.

The assessment will tell “us what we know but in much more detail like events of heavy precipitation and heatwaves will increase, so will dry spells, and intensity of tropical cyclones will go up. But the assessment will not tell us how various sectors like agriculture, health and economy will be impacted,” said M Rajeevan, secretary, MoES.

The document may be available only after the 25th conference of parties to the UN Framework Convention on Climate Change (UNFCCC) in Chile in December 2019. It is expected to be available in 2020 when the Paris Agreement is operationalised.

The finance ministry, in a note on climate change earlier this week, mentioned that India was juxtaposed between the Himalayas and the India Ocean and that the subcontinent was subject to higher climate variability compared to the continental climates of North America and Europe.

The annual mean, maximum and minimum temperatures during the period 1901 to 2010 show a significant increasing trend of 0.6°C, 1°C and 0.18°C, respectively, it said. Daily rainfall observations during 1901-2004 indicated that the frequency of extreme rainfall events (rain rate > 100 mm/day) rose significantly. Several IMD studies have highlighted the climate change hotspots in India — central India, for example, is the most vulnerable to extreme rain events. One of the findings of the assessment is that intensity of Category 4 and 5 cyclones will increase. Cyclones are ranked on a five-scale intensity index based on severity from Category 5 being the strongest.

Several countries are now considering domestic climate change assessments to be better prepared, according to R Krishnan, an Indian Institute of Tropical Meteorology (IITM) scientist who is curating the assessment. “It will be a useful document for policymakers. IPCC makes global projections. There are knowledge gaps for individual countries, so ministry is keen that we know what to expect in India,” he said.

Scientists and scientific institutions have been forthcoming in recording impact and assessing what a 2°C warming scenario means for India. A study by the IITM earlier this year warned that the frequency and duration of heat waves in April, May and June will increase dramatically during the 2020-2064 period.

Worse, even southern and coastal parts of the country, which are presently unaffected by heat waves, are likely to be affected by heat waves. Both heat wave frequency and duration will increase significantly in the core heat wave zone over central and northwest India by 0.5 events per decade and 4-7 days per decade respectively.

The Divecha Institute of Climate Change at the Indian Institute of Science-Bangalore (IISc-B), for example, has prepared several research notes on how climate change is impacting the Himalayas. For the past three decades, the mean temperature increase in the Himalayas has been higher than the global mean. It has projected that the Himalayan region will experience a temperature rise of approximately 2.4°C in a low emission scenario and as high as 5.5°C in a high emission scenario by end of 21st century, which would mean an increase in disasters like glacial lake outburst floods and implications for water availability.

(HT is participating in Covering Climate Now, a global journalism initiative committed to bringing more and better coverage to the defining story of our time)

## Global Warming (The Asian Age: 20190920)

<http://onlinepaper.asianage.com/articledetailpage.aspx?id=13792669>

# 'Global warming to increase in future'

**Washington:** The rate at which the planet warms in response to the ongoing buildup of heat-trapping carbon dioxide gas may increase in the future, according to simulations of a comparable warm period over 50 million years ago.

Researchers at the University of Michigan and the University of Arizona in the US used a

climate model to successfully simulate — for the first time — the extreme warming of the early eocene period, which is considered an analogue for Earth's future climate.

The study, published in the journal *Science Advances*, found that the rate of warming increased dramatically as carbon dioxide levels rose, a finding with far-reach-

ing implications for future climate of the Earth.

Another way of stating this result is that the climate of the early eocene became increasingly sensitive to additional carbon dioxide as the planet warmed.

"We were surprised that the climate sensitivity increased as much as it did with increasing carbon dioxide levels," said

Jiang Zhu, a postdoctoral researcher at the University of Michigan.

"It is a scary finding because it indicates that the temperature response to an increase in carbon dioxide in the future might be larger than the response to the same increase in CO2 now. This is not good news for us," Zhu said.

— PTI

## Plastic ban

### Govt to implement single-use plastic ban in several phases (Hindustan Times: 20190920)

<https://epaper.hindustantimes.com/Home/ArticleView>

New Delhi : The Modi government's decision to eliminate disposable, single-use plastic is likely to be carried out over several phases, with officials ruling out an outright ban, an official familiar with the matter said.

A national policy on single-use plastics currently being put together is proving to be a humongous task involving inputs from several ministries, led by the consumer affairs ministry. Currently, consultations are underway with plastic industry, while technical inputs have also been sought from environmental experts and economists.

Officials are preparing to release the contours of the policy by October 2, Mahatma Gandhi's 150th birth anniversary, the official cited above said.

Prime Minister Narendra Modi's call on August 15 to eliminate the use of these polluting items by 2022 has been widely welcomed, but banning a huge chunk of the informal economy could come with its own costs.

"It will most likely be a phase-wise plan. Single-use plastics are not all of one type or one standard. Some are less polluting than others, while some leave the worst impact," the official said.

Disposable plastics, which have the "lowest recyclability" and "highest harm factor", meaning they are the least biodegradable and with the lowest possibility of being reconverted, are likely to be banished first, the official said.

A tricky aspect is that officials are trying to have a legal definition of what is single-use plastic. Last year, the chemical and fertilisers ministry formed a committee to define single-use plastic. However, its conclusions never found its way into any statute. The government is also grappling with "extended plastic processing rules", which will be a set of recycling guidelines.

The exercise could involve statutory or legal changes.

"Many polymers would fit the definition of single-use plastic. Essentially, the guiding principle is all plastic that is generally not used more than once and has a use-and-throw utility can be called single-use plastic," said Dinesh Raj Bandela, a waste management expert with the New Delhi-based Centre for Science and Environment (CSE).

"The government should not rush into it. Any plan has to take into account social and economic impacts for the ban to be successful," Bandela added.

The CSE and Chintan Environmental Research and Action Group are among organisations the government has consulted.

"We do not think there will be stringent action that will jolt the economy. There are various lists of items to be banned. At a minimum, the first round of action will result in the shutting down of 10,000 units involving a workforce of 300,000," said Deepak Ballani, director-general of the All India Plastic Manufacturers Association.

Some popular items such as plastic cups, plates, and straws are readily thought of as single-use items. However, the panel overseeing the impending ban is technically evaluating a host of items. Polystyrene or thermocol is a highly damaging single-use plastic but it has virtually no alternative.

Items with no alternative are likely to be taken up at later phases, the official cited above said. Experts like Bandela agree that "high nuisance" and "low recyclability" should be the first items to go. Officials are also studying the experiences of Maharashtra and Tamil Nadu, which have plastic bans in place.

According to a 2018 report by the Down To Earth magazine, India consumes an annual estimated 16.5 million tonnes of plastic.



## **Antimicrobial resistance**

### **‘India hub of antimicrobial resistance’ (Hindustan Times: 20190920)**

<https://epaper.hindustantimes.com/Home/ArticleView>

journal science Warns of massive health implications for human and animal health

New Delhi: India and China are among the major hotspots for antimicrobial resistance (AMR) in livestock, which has massive implications for animal and human health as well as the supply of meat to feed the world’s rapidly-expanding population, said a study published in the journal, Science on Thursday.

The World Health Organization (WHO) defines AMR is the ability of a microorganism such as bacteria, viruses, and some parasites to stop an antimicrobial [like antibiotic, antiviral etc] from working against it. As a result, standard treatments become ineffective, infections persist and may spread to others.

More than half the of the world’s chicken (54%) and pigs (56%) are raised in Asia. AMR is driven by misuse and over-use of antimicrobials for intensive animal farming, and almost three-fourth of all antibiotics used are in animals raised for food, according to the study.

Globally, the proportion of drugs with a failure rate of 50% increased annually 173% in chickens and 161% in pigs between 2000 and 2018, according to data from 901 point-prevalence surveys. Point prevalence is the proportion of a population that has the condition at a specific point in time. The study identified north-eastern India, north-eastern China, northern Pakistan, Iran, eastern Turkey, south coast of Brazil, Nile delta, Red river delta in Vietnam and the areas surrounding Mexico City and Johannesburg as AMR hotspots. The study stresses the need for controlling AMR in animals as the emerging infectious diseases are associated with drug-resistant pathogens that are transferring from animals to humans. “Whenever we talk about antibiotic resistance, we talk about people but it is necessary to understand that it is a huge problem among animals as well. This is the first global study that looks at the trends of antimicrobial resistance among animals,” said Ramanan Laxminarayan, study co-author and director of Center for Disease Dynamics, Economics & Policy, Washington DC, United States. “In Asia, targeted interventions such as legislative action and subsidies to improve farm hygiene could reduce the need for antimicrobials in animal production,” the study said.

While Africa has no hotspot except Johannesburg, scientists warn that missing AMR data in Uruguay, Paraguay, Argentina and Brazil is a global concern as these are big meat exporters.

High temperature also raises AMR. “High temperature causes stress and conflicts in animals, thus increasing the risk of wounds that require preventive antimicrobial treatment,” the study said. Of greater concern is the presence of resistance to third and fourth generation

antibiotics, used when no other antibiotics work, and which are critical for treatment of human beings. “The use of antibiotics in animals is very high in India and China, and the worry is that the antibiotic resistance in animals and resistant pathogens in the environment will find its way to humans,” said Dr Pallab Ray, professor of microbiology at Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh, who has worked extensively on AMR.

### **Child and maternal mortality rates**

#### **A mother or newborn dies every 11 sec (Hindustan Times: 20190920)**

<https://epaper.hindustantimes.com/Home/ArticleView>

New Delhi : Child and maternal mortality rates may have seen a decline over the years, yet a mother or a newborn dies every 11 seconds during child birth globally. Statistics released by the United Nations on Thursday show that since 2000, child deaths have reduced by nearly half and maternal deaths by over one-third, mostly due to improved access to affordable, quality health services.

The number of women dying due to complications during pregnancy and childbirth dropped by more than a third to around 295,000 in 2017, in comparison to 451,000 in 2000.

“In countries that provide safe, affordable, high-quality health services, women and babies survive and thrive,” World Health Organisation chief Tedros Adhanom Ghebreyesus said in a statement.

Since the turn of the century, the number of deaths among children under the age of five has also been cut almost in half to 5.3 million worldwide last year. While this marks an improvement, almost half of those deaths occurred during the first month of life, meaning that around 7,000 newborns still died every single day last year. Also, 800 women died each day from complications in pregnancy and childbirth in 2017, the UN numbers showed.

In all, the statistics reveal that an estimated 2.8 million women and newborns die every year, mostly from preventable causes.

In India, the overall infant mortality rate (IMR) and maternal mortality rate (MMR) have also come down over the years but the country is still losing new mothers and newborns annually. The current IMR of India is 33 per 1000 live births, having come down from 68 per 1000 live since 2000. Malnutrition is still the underlying risk factor for 68% of the deaths in under-five

children in India, and is the leading risk factor for disease burden in persons of all ages considered together contributing 17% of the total disability adjusted life years. “We need to better focus on tackling malnutrition in India as it is one of the leading risk factors for death in children. We have made great strides but we need to do better,” said Save the Children India CEO Bidisha Pillai.

India’s Maternal Mortality Ratio (MMR) is 130 per 100,000 live births, drop from 254 per 100,000 live births in 2004.

“Around the world, birth is a joyous occasion. Yet, every 11 seconds, a birth is a family tragedy,” head of the UN children’s agency Henrietta Fore said in the statement.

Under the Sustainable Development Goals, the world has committed to trying to bring the global MMR to below 70 deaths per 100,000 live births by 2030.

## **Poshan Abhiyaan**

### **India unlikely to meet ‘Poshan Abhiyaan’ targets, finds study (The Hindu: 20190920)**

<https://www.thehindu.com/news/national/nutritional-targets-under-poshan-abhiyaan-aspirational-study/article29461250.ece>

According to the National Family Health Survey-4, 38.4% of children under the age of five are stunted.

The study points out that India will miss its target for stunting levels of 25% by 9.6%; underweight target of 22.7% by 4.8%.

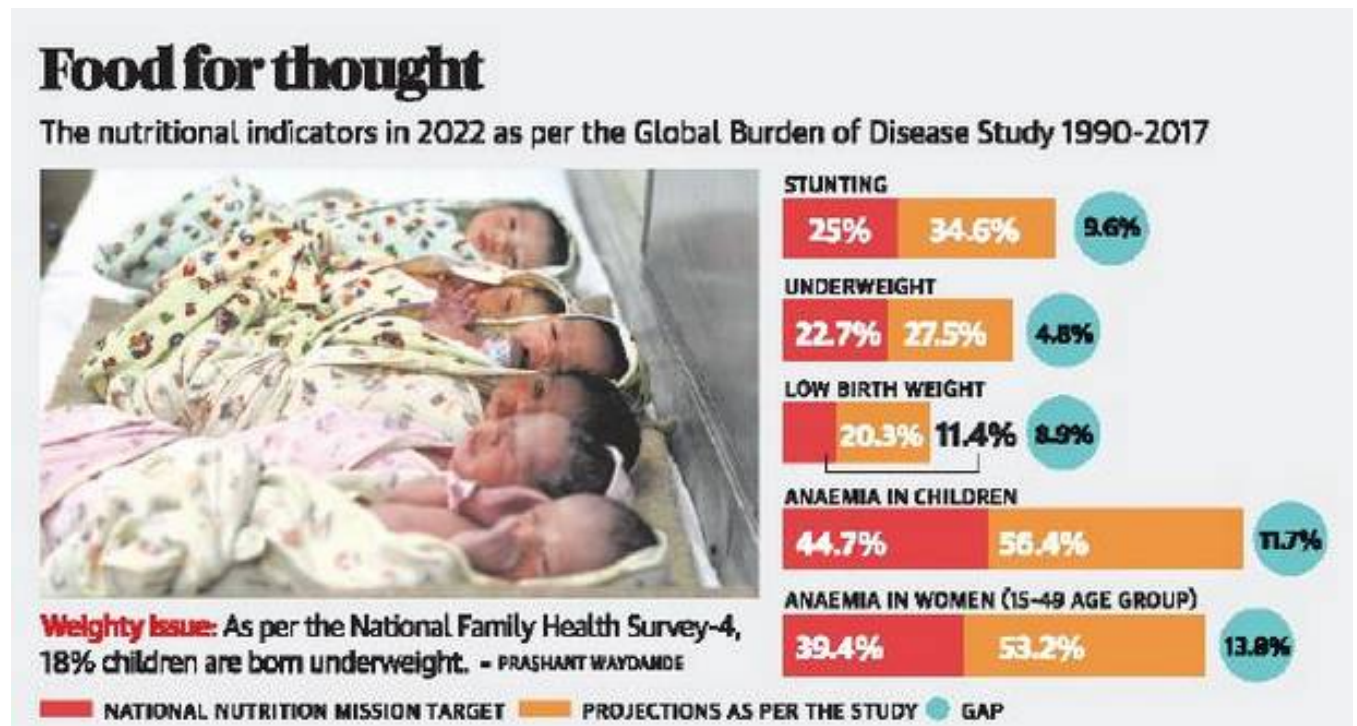
India is unlikely to meet targets set under the ambitious Poshan Abhiyaan or National Nutrition Mission (NNM) for reduction in prevalence of stunting, underweight, low birth weight and anaemia in women and children by 2022 if there is no progress achieved in improving the rate of decline observed between 1990 and 2017, according to a new study published in The Lancet.

The study points out that India will miss its target for stunting levels of 25% by 9.6%; underweight target of 22.7% by 4.8%; desired low birth level of 11.4% by 8.9%; anaemia level among women of 39.4% by 13.8%; and anaemia level among children of 44.7% by 11.7%, according to the Global Burden of Disease Study 1990-2017, released on Wednesday.

Joint initiative

The report is a joint initiative of Indian Council of Medical Research, Public Health Foundation of India (PHFI) and the Ministry of Health and Family Welfare.

Poshan Abhiyaan, the world's largest nutrition programme, expected to benefit 10 crore people and launched in 2018 by Prime Minister Narendra Modi, aims to reduce stunting, underweight, and low birth weight, each by 2% per year; and anaemia among young children, adolescents and women each by 3% per year until 2022. A special target for stunting is set at 25% by 2022.



India unlikely to meet 'Poshan Abhiyaan' targets, finds study

A senior official at government think-tank NITI Aayog, which is spearheading the programme, says that the findings are not worrisome.

"Poshan Abhiyaan has doubled the rate [of decline]. For example, it sets a target of 2% reduction per year for underweight, but the percentage of reduction for this indicator typically is 1%. So, we are not worried. We knew the prevalent levels were slow; the country aspires to make them faster and is making extra efforts to achieve that. Under Poshan Abhiyaan, we will make a change," Dr. Vinod K. Paul, Member, NITI Aayog told The Hindu.

'Needs acceleration'

The study, however, points out that the rates of improvement desired under the Poshan Abhiyaan are aspirational.

"Our findings suggest that the malnutrition indicator targets set by NNM for 2022 are aspirational, and the rate of improvement needed to achieve these targets is much higher than the rate observed in this study, which might be difficult to reach in a short period. This slow

pace of improvement needs to be accelerated, so that future prevalence of the malnutrition indicators is better than our projections based on trends so far.”

“Additional efforts over the last two years in the Poshan Abhiyan as well as the Swachh Bharat Abhiyan are likely to have hastened improvement,” said Professor Lalit Dandona, PHFI.

Gaps shown

He added that the gaps shown in the study highlight how much more of these efforts are needed in different States to reach the targets set by the government.

According to the National Family Health Survey-4 (2015-2016), 38.4% of children under the age of five are stunted; 35.7% are underweight; 18% of children were born underweight (less than 2.5 kg); and 58% of children between the age of 6-59 months and 53% of women in the age of 14-49 years have anaemia.

While the base for NNM targets is NFHS-4 data, the study considers prevalence levels determined in 2017 as the base level, which are comparable with the former.

The study used all accessible data sources from India, including national household surveys, a variety of dietary and nutrition surveys, and other epidemiological studies, to arrive at its findings.

## **Child Health**

**UNICEF says conflicts, climate crisis, online misinformation are big emerging threats to children (The Hindu: 20190920)**

<https://www.thehindu.com/news/national/unicef-says-conflicts-climate-crisis-online-misinformation-are-big-emerging-threats-to-children/article29456884.ece>

Organisation’s executive director Henrietta Fore in open letter outlines eight growing challenges for the world’s children

Protracted conflicts, the worsening climate crisis, a rising level of mental illness among young people, and online misinformation are some of the most concerning emerging global threats to children, cautions the UNICEF.

In an open letter issued by the organisation's executive director Henrietta Fore marking 30 years since the adoption of the Convention on the Rights of the Child, the UNICEF sounds the alarm on major growing and future challenges facing children.

'New set of challenges'

The letter outlines eight growing challenges for the world's children including prolonged conflicts, pollution and the climate crisis, a decline in mental health, mass migration and population movements, statelessness and online misinformation.

"The children of today, are facing a new set of challenges and global shifts that were unimaginable to your parents," writes Ms. Fore.

"Our climate is changing beyond recognition. Inequality is deepening. Technology is transforming how we perceive the world. And more families are migrating than ever before. Childhood has changed, and we need to change our approaches along with it."

The letter also expresses concern that the majority of children will grow up as natives of a digital environment saturated with online misinformation. For example, so-called 'deep fake' technology uses artificial intelligence techniques to create convincing fakes of audio and video content, relatively easily.

The letter warns that an online environment where truth can become indistinguishable from fiction has the potential to totally undermine trust in institutions and information sources, and has been demonstrated to skew democratic debate, voter intentions, and sow doubt about other ethnic, religious or social groups.

"Online misinformation is already leaving children vulnerable to grooming, abuse, and other forms of exploitation; skewing democratic debate; and, in some communities, even prompting resurgence in deadly diseases due to distrust in vaccines fuelled by online misinformation – the results of which could be the creation of an entire generation of citizens who do not trust anything," states the letter.

The UNICEF suggests that we should start by equipping young people with the ability to understand who and what they can trust online, so they can become active, engaged citizens.

The letter cautions that mental illness among adolescents has been on the rise in the years since the adoption of the Convention on the Rights of the Child, and that depression is now among the leading causes of disability in the young.

The letter urges that appropriate promotion, prevention and therapeutic treatment and rehabilitation for children and young people affected by mental health issues be prioritised, and that the stigma and taboo surrounding mental illness be challenged so that treatment can be sought and support provided.

## Vaccine

### Catch a cold and help scientists make new vaccines (The Hindu: 20190920)

<https://www.thehindu.com/sci-tech/science/catch-a-cold-and-help-scientists-make-new-vaccines/article29461633.ece>

Two sides: The Controlled Human Infection Model is useful but brings with it ethical challenges.

Under a new model, volunteers will be infected with viruses or bacteria

The Department of Biotechnology (DBT) is close to finalising three projects worth ₹135 crore, involving Indian and European scientists, to develop new influenza vaccines.

What will make these projects unique is that they involve a Controlled Human Infection Model (CHIM): volunteers who take part in trials will be infected, under expert supervision, with infectious viruses or bacteria. Such studies, which are being employed in vaccine development in the United States, the United Kingdom and Kenya, are being considered in India.

A CHIM approach will speed up the process whereby scientists can quantify whether potential vaccine candidates can be effective in people and identify the factors that determine why some vaccinated people fall sick and others do not. The risk in such trials is that intentionally infecting healthy people with an active virus and causing them to be sick is against medical ethics. It also involves putting human lives in danger.

#### Ethics and guidance

By November, experts in vaccine development, social scientists and bio-ethicists are expected to prepare, with the DBT's support, a guidance document that will elaborate upon the circumstances under which CHIM trials may be conducted, facilities needed, the profile of potential volunteers, the informed-consent forms they would need to sign and the compensation that can be offered.

Post the availability of guidance documents, there needs to be approval from the Drug Controller-General of India. "Any such trial will have to comply with the rules governing clinical trials in India. The influenza trials will be performed outside India, but what we are hoping to get out of this is learning," said Gagandeep Kang, Director, Translational Health Science and Technology Institute of India (THSTI). Scientists at the THSTI are involved in establishing protocols for the trials.

Intestinal bugs too

Rather than influenza trials, India would likely develop CHIM protocols to study bacterial or enteric viruses (residing in the intestine) such as cholera or typhoid, said Professor Kang. If successful, these would serve to create back-ups to the existing cholera and typhoid vaccines. Experience with CHIM could help to create clinical investigators trained in vaccine development.

The Hyderabad-based biotech company, Bharat Biotech, relied on a CHIM approach to establishing that its conjugate typhoid vaccine — while already licensed in India — was effective in a large population. With funding from the Bill and Melinda Gates Foundation and the international consortium GAVI, the vaccine's potency was evaluated by infecting human volunteers at Oxford University in the U.K. with a typhoid parasite. The results encouraged scientists to test the vaccine in Nepal, Bangladesh and Malawi among 1 lakh children. The vaccine was over 80% protective when tested on the field, claimed Andrew Pollard, leader of the UK vaccine trials and professor at Oxford University. The findings are to be published in a forthcoming issue of the peer-reviewed New England Journal of Medicine.

Vaccines traditionally are made of a weakened form of a disease-causing virus or bacteria and injected into the body to coax the immune system into making antibodies that create immunity against future infection. Years of vaccine development has shown that frequently vaccines that work in small groups of people may not always work in large populations, or those that are effective in one country may not be in another. CHIM models help vaccine-makers decide whether they should go ahead with investing in expensive trials.

### **HPV-related cancer**

**Over 70% of US adults unaware of HPV-related cancer risks (Medical News Today: 20190920)**

<https://www.medicalnewstoday.com/articles/326388.php>

Researchers at the University of Texas have found that generally, both men and women in the United States have a limited awareness of the fact that untreated human papillomavirus (HPV) infections can lead to anal, genital, and oral cancers.

Many people in the U.S. are unaware of the cancer risks associated with HPV.



According to the Centers for Disease Control and Prevention (CDC), HPV — a sexually transmitted infection — "is so common that nearly all sexually active men and women get the virus at some point in their lives."

Although HPV may come and go unnoticed, for some people, it could bring more serious consequences.

For example, HPV can lead to cervical cancer, anal cancer, penile cancer, and oral cancer, among others.

To prevent the spread of HPV, the CDC recommend that teenagers and young adults ages 11–27 should get vaccinated against the virus.

Despite the fact that HPV can increase a person's risk of developing some types of cancer, a new study from the University of Texas Health Science Center at Houston School of Public Health has found that most adults in the U.S. remain unaware of these possibilities.

"The lack of knowledge may have contributed to low HPV vaccination rates in the U.S.," says lead study author Dr. Ashish Deshmukh.

The research — the findings of which now appear in the journal *JAMA Pediatrics* — also found that many people eligible for vaccination do not receive recommendations for this inoculation from their doctors.

#### Experts urge better HPV education

For this study, the researchers looked at information that 2,564 men and 3,697 women provided in their responses to the Health Information National Trend Survey.

As many as two-thirds of the male respondents and one-third of the female respondents ages 18–26 had no knowledge of the fact that HPV could cause cervical cancer.

#### Vaccine cuts rate of HPV infection, precancerous lesions

HPV vaccines have been effective in reducing cases of precancerous lesions on the cervix.

Also, more than 80% of male and 75% of female respondents in the same age group lacked awareness of the HPV-related risk of oral, anal, and penile cancers. The same was true of around 70% of adult respondents of any age.

"In particular, the lack of HPV knowledge among adults aged 27 to 45 years and 46 years and older is concerning given that adults in these age groups are (or will likely be) the parents responsible for making HPV vaccination decisions for their children," the researchers explain in their study paper.

The team also found that only 19% of the male respondents and 31.5% of the female respondents eligible for an HPV vaccine reported having received recommendations from their doctors to get inoculated.

"HPV vaccination campaigns have focused heavily on cervical cancer prevention in women. Our findings demonstrate a need to educate both sexes regarding HPV and HPV vaccination," notes Dr. Deshmukh.

"Rates of cervical cancer have declined in the [past] 15 to 20 years because of screening. On the other hand, there was a greater than 200% increase in oropharyngeal cancer rates in men and a nearly 150% rise in anal cancer rates in women," he adds.

This, the study authors conclude, is why "educational campaigns that target both sexes and convey the benefits of HPV vaccination for cancer prevention are urgently needed to accelerate HPV vaccine initiation and completion in the [U.S.]."

## **Alzheimer's disease**

### **Can exercise slow down Alzheimer's? (Medical News Today: 20190920)**

<https://www.medicalnewstoday.com/articles/326383.php>

A proof-of-concept brain imaging study suggests that exercising four or five times a week may delay the progression of Alzheimer's disease in people who already have toxic buildups of beta-amyloid protein.

Aerobic exercise could slow the cognitive decline of Alzheimer's, a small new study suggests.

The new research is a 1-year randomized controlled trial led by Prof. Rong Zhang. The team published their findings in the Journal of Alzheimer's Disease.

Prof. Zhang is affiliated with the departments of neurology, neurotherapeutics, and internal medicine at the University of Texas Southwestern Medical Center, in Dallas.

He and his team previously dedicated their efforts to studying the relationship between exercise and dementia. One such study that Medical News Today reported on found that aerobic exercise preserves the brain health of people with mild cognitive impairment.

Specifically, that study found that regular exercise maintains the integrity of the brain's white matter, which encompasses billions of nerve fibers and is linked with better executive function. Executive function refers to the brain's ability to plan, organize, and complete tasks.

Now, the new research has examined the effects of exercise in 70 adults aged 55 or over. The participants had amnesic mild cognitive impairment — the most common form of mild cognitive impairment that affects memory, in particular.

The participants' brains also had accumulations of beta-amyloid — a protein that is a marker of Alzheimer's when it builds up to toxic levels.

Speaking about the motivation for the new research, Prof. Zhang asks, rhetorically: "What are you supposed to do if you have amyloid clumping together in the brain? Right now doctors can't prescribe anything."

### Exercise benefits the hippocampus

So, Prof. Zhang and colleagues monitored "the effect of a progressive, moderate to high intensity" program of aerobic exercise on memory, executive function, brain volume, and cortical levels of beta-amyloid.

They also monitored total brain volume and the brain volume of the hippocampus as secondary outcomes. The hippocampus deals primarily with learning and memory, and Alzheimer's usually severely affects the area.

### Aerobic exercise may be key for Alzheimer's prevention

A review of existing studies confirms the preventive benefits of exercise.

The scientists divided the participants into two groups. One group did aerobic training, while the other engaged in stretching and toning control activities.

At the end of the trial, both groups had similar levels of cognitive ability, particularly in terms of memory and problem solving.

However, brain imaging revealed unique benefits for participants who already had buildups of beta-amyloid and who had exercised regularly.

Specifically, their hippocampus had decreased in size a lot less, compared with participants who had not exercised at all.

"It's interesting that the brains of participants with amyloid responded more to aerobic exercise than the others," comments Prof. Zhang.

"Although the interventions didn't stop the hippocampus from getting smaller, even slowing down the rate of atrophy through exercise could be an exciting revelation."

### More research is necessary

However, the authors emphasize that they do not yet know whether this reduced atrophy actually results in cognitive benefits.

"I'm excited about the results, but only to a certain degree," Prof. Zhang says. "This is a proof-of-concept study, and we can't yet draw definitive conclusions."

"If these findings can be replicated in a larger trial, then maybe one day doctors will be telling high risk patients to start an exercise plan. In fact, there's no harm in doing so now."

Prof. Rong Zhang

"Understanding the molecular basis for Alzheimer's disease is important," Prof. Zhang says. "But the burning question in my field is, 'Can we translate our growing knowledge of molecular biology into an effective treatment?' We need to keep looking for answers."

Currently, Prof. Zhang is leading a national clinical trial that will further investigate the link between exercise and dementia.

The trial will span 5 years and is looking at whether aerobic exercise training in combination with medications that lower blood pressure and cholesterol can protect cognition and keep brain volume intact.

## **Diabetes**

### **Early signs of type 2 diabetes can be seen in kids: Study (New Kerala: 20190920)**

<https://www.newkerala.com/news/read/213671/early-signs-of-type-2-diabetes-can-be-seen-in-kids-study.html>

London, Sep 18 : Researchers have found that early signs of adulthood type 2 diabetes can be seen in children as young as 8 years old.

Type 2 diabetes is most often diagnosed in middle age or later, with its symptoms slowly developing over many years.

"It's remarkable that we can see signs of adult diabetes in the blood from such a young age, this is about 50 years before it's commonly diagnosed.

"This is not a clinical study; nearly all participants were free of diabetes and most will not go on to develop it. This is about liability to disease and how genetics can tell us something about how the disease develops," said study researcher Joshua Bell from the University of Bristol in the UK.

The research was conducted among young healthy people who were generally free of type 2 diabetes and other chronic diseases to see how early in life the effects of diabetes susceptibility become visible.

The study tracked over 4,000 participants of the Children of the 90s study, a birth cohort established in Bristol in the early 1990s.

The researchers combined genetics with an approach called 'metabolomics', which involves measuring many small molecules in a blood sample to try and identify patterns that are unique to type 2 diabetes.

According to the findings, the research team analysed 162 pieces of genetic information and combined this with 200 measures of many small molecules in a blood sample, known as metabolics, to identify signs of type 2 diabetes.

Data was taken once in childhood -- at 8 years old, twice in adolescence aged 16 and 18 years and once in young adulthood aged 25 years.

They found levels of HDL cholesterol were reduced at age 8, while inflammatory glycoprotein acetyls and amino acids were elevated in 16 and 18 year old teenagers.

These metabolic features could be targeted to prevent young people from going on to develop type 2 diabetes in the future, the researchers said.

The findings were presented at the European Association for the Study of Diabetes (EASD) Annual Meeting in Barcelona.

## **Lack of Sleep**

### **Lack of sleep does alter fat metabolism (New Kerala: 20190920)**

<https://www.newkerala.com/news/read/213181/lack-of-sleep-does-alter-fat-metabolism.html>

London, Sep 17 : Lack of sleep can be harmful as it can make participants feel less full after eating and metabolise the fat in food differently, says a study, adding to the mounting evidence that how harmful lack of sleep can be.

The study, published in the journal of Lipid Research, by Pennsylvania State University found that sleep disruption has been known to have harmful effects on metabolism for some time.

Orfeu Buxton, a professor at Penn State, added that long-term sleep restriction puts people at a higher risk of obesity and diabetes.

Kelly Ness, now a postdoctoral fellow at the University of Washington, ran the study when she was a graduate student in Buxton's lab.

She and other researchers not only collected data but also spent time, "interacting with the subjects, playing games with them, talking with them -- helping to keep them awake and engaged and positive."

To find out how the uncomfortable schedule affected metabolism, the researchers gave participants a standardized high-fat dinner, a bowl of chili mac, after four nights of sleep restriction.

"It was very palatable -- none of our subjects had trouble finishing it -- but very calorically dense," Ness said, adding that most participants felt less satisfied after eating the same rich meal while sleep deprived than, when they had eaten it well-rested.

Researchers then compared blood samples from the study participants. They found that sleep restriction affected the postprandial lipid response, leading to faster clearance of lipids from the blood after a meal. That could predispose people to put on weight.

"The lipids weren't evaporating -- they were being stored," Buxton explained.

This study was highly controlled, which makes it an imperfect model for the real world, Ness said.

It focused on healthy young people, who are usually at a lower risk of cardiovascular disease, and all of the participants were men.

The researchers also wondered whether giving more recovery time would change the magnitude of recovery they observed.

Nonetheless, according to Buxton, the study gives worthwhile insight into how we handle fat digestion.