

Environment News Futures

Does Eating Fish Protect Our Brains from Air Pollution?

15 July 2020—American Academy of Neurology

Older women who eat more than one to two servings a week of baked or broiled fish or shellfish may consume enough omega-3 fatty acids to counteract the effects of air pollution on the brain, according to a new study published in the July 15, 2020, online issue of *Neurology*[®], the medical journal of the American Academy of Neurology.

Researchers found that among older women who lived in areas with high levels of air pollution, those who had the lowest levels of omega-3 fatty acids in their blood had more brain shrinkage than women who had the highest levels.

“Fish are an excellent source of omega-3 fatty acids and easy to add to the diet,” said study author Ka He, M.D., Sc.D., of Columbia University in New York. “Omega-3 fatty acids have been shown to fight inflammation and maintain brain structure in aging brains. They have also been found to reduce brain damage caused by neurotoxins like lead and mercury. So we explored if omega-3 fatty acids have a protective effect against another neurotoxin, the fine particulate matter found in air pollution.”

The study involved 1,315 women with an average age of 70 who did not have dementia at the start of the study. The women completed questionnaires about diet, physical activity, and medical history.

Researchers used the diet questionnaire to calculate the average amount of fish each woman consumed each week, including broiled or baked fish, canned tuna, tuna salad, tuna casserole and non-fried shellfish. Fried fish was not included because research has shown deep frying damages omega-3 fatty acids.

Participants were given blood tests. Researchers measured the amount of omega-3 fatty acids in their red blood cells and then divided the women into four groups based on the amount of omega-3 fatty acids in their blood.

Researchers used the women’s home addresses to determine their three-year average exposure to air pollution. Participants then had brain scans with magnetic resonance imaging (MRI) to measure various areas of the brain including white matter, which is composed of nerve fibers that send signals throughout the brain, and the hippocampus, the part of the brain associated with memory.

After adjusting for age, education, smoking and other factors that could affect brain shrinkage, researchers found that women who had the highest levels of omega-3 fatty acids in the blood had greater volumes of white matter than those with the lowest levels. Those in the highest group had 410 cubic centimeters (cm³) white matter, compared to 403 cm³ for those in the lowest group. The researchers found that for each quartile increase in air pollution levels, the average white matter volume was 11.52 cm³ smaller among people with lower levels of omega-3 fatty acids and 0.12 cm³ smaller among those with higher levels.

Women with the highest levels of omega-3 fatty acids in the blood also had greater volumes of the hippocampus.

“Our findings suggest that higher levels of omega-3 fatty acids in the blood from fish consumption may preserve brain volume as women age and possibly protect against the potential toxic effects of air pollution,” said He. “It’s important to note that our study only found an association between brain volume and eating fish. It does not prove that eating fish preserves brain volume. And since separate studies have found some species of fish may contain environmental toxins, it’s important to talk to a doctor about what types of fish to eat before adding more fish to your diet.”

A limitation of the study was that most participants were older white women, so the results cannot be generalized to others. Also, researchers were only able to examine exposures to later-life air pollution, not early or mid-life exposures, so future studies should look at exposures to air pollution across a person’s lifespan.

Pesticide Mixtures a Bigger Problem than Previously Thought

14 July 2020—University of Queensland

New research has provided the first comprehensive analysis of pesticide mixtures in creeks and rivers discharging to the Great Barrier Reef.

New research led by The University of Queensland has provided the first comprehensive analysis of pesticide mixtures in creeks and rivers discharging to the Great Barrier Reef.

UQ’s School of Earth and Environmental Sciences researcher Associate Professor Michael Warne conducted the study with the Queensland Department of Environment and Science, and analysed 2600 water samples from 15 waterways that discharge into the Great Barrier Reef lagoon over a four-year period.

“While I knew many water samples would contain mixtures, I was shocked to find that essentially every sample contained mixtures of pesticides,” Dr Warne said. “We found 99.8 per cent of the samples contained pesticide mixtures with up to 20 pesticides in any single water sample. The issue with having mixtures of pesticides is that as the number of pesticides increases the impact to aquatic ecosystems generally increases. This work strongly supports the inclusion of the pesticide reduction target in the Reef 2050 Water Quality Improvement Plan which aims to protect at least 99 per cent of aquatic organisms at the mouths of rivers from the adverse effects of all pesticides.”

Dr Warne said the best way to address the problem of pesticides and pesticide mixtures in runoff was to work with land managers, share information and help them to improve their pesticide management practices.

“We are doing just that with other partners including Farmacist, James Cook University and the Department of Environment and Science through Project Bluewater which is funded by the Great Barrier Reef Foundation,” he said. “This project is working with 70 sugar cane farmers in the Barratta Creek and Plane River catchments to improve their pesticide management and application, upgrade equipment, reduce pesticide use and switch to using lower risk pesticides. We have found the farmers involved to be very eager to engage with the science—they have embraced the challenge and are making significant steps toward improvement. We are looking to expand this project to include considerably more farmers in more catchments and make more rapid progress in reducing pesticide losses to waterways. There is always hope, but this study reveals the pesticide situation is more complex than we previously realised.”

Climate Change makes Freak Siberian Heat ...

Read more at: http://timesofindia.indiatimes.com/articleshow/76997690.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst

Draft EIA Notification, 2020

27 June 2020—iasparliament

What is the issue?

- The government has put up for public consideration and comment the Draft Environmental Impact Assessment (EIA) Notification, 2020.
- The draft is seen as an attempt to weaken environmental regulation and silence the affected communities.

What is EIA?

- The EIA process scrutinises the potential environmental impact of a project.
- It looks into the negative externalities of a proposed project i.e. before commencement.
- It then determines whether it can be carried out in the form proposed, or whether it is to be abandoned or modified.

How does it work?

- The assessment is carried out by an Expert Appraisal Committee (EAC).
- The EAC consists of scientists and project management experts.
- The EAC frames the scope of the EIA study and a preliminary report is prepared.
- The report is published, and a public consultation process takes place.
- During consultation, objections can be heard including from project-affected people.
- The EAC can then make a final appraisal of the project.
- It is then forwarded to the regulatory authority, which is the Ministry of Environment and Forests (MoEF).
- The regulatory authority is ordinarily obliged to accept the decision of the EAC.

What is the idea behind?

- The basis in global environmental law for the EIA is the “precautionary principle”.
- Environmental harm is often irreparable.
- It is thus cheaper to avoid damage to the environment than to remedy it.
- Various international environmental treaties and obligations as well as Supreme Court judgments are based on this principle.
- Environmental regulation must balance damage to the environment with sustainable development and possible benefits of a project.
- In this line, any project that involves environmental factors needs an unbiased assessment made on a precautionary basis.
- It is with this idea that the Environmental Impact Assessment is carried out.
- However, industries and business interests have long regarded EIA as a constraint to them.

What are the concerns with the recent notification?

- The stated reason is to streamline the EIA process and bring it in line with recent judgments.
- If put into force, the EIA Notification, 2020 will replace the EIA Notification, 2006 for all future projects.
- But the Draft EIA Notification dilutes the effectiveness of the process, and shrinks its scope.
- The most devastating blow to the EIA regime is the creation of an ex-post-facto clearance route.
- Under this, the project proponent can enter an assessment procedure, with some minor fines for the violations.
- In other words, it offers a route when an EIA clearance is not sought or granted, and the construction of the project had taken place.
- Where such ex-post-facto clearances were being granted previously, the courts cracked down on them as illegal.
- Therefore, what could not be ratified will now find itself notified.
- The legality of sidestepping the courts is questionable and will have to be tested.
- In essence, the EIA would become a business decision as to whether the law needs to be followed or the violation can be “managed”.
- The argument that this route will be an “exception” is difficult, given the long history of expanding the exception into the rule.
- The draft notification also shortens the time for the public to furnish responses on the project.
- The project-affected people are frequently forest dwellers.
- For these and others who do not have access to information and technology, this will make it harder to put forth representations.
- Monitoring requirements have also been relaxed.
- The draft EIA notification halves the frequency of reporting requirements from every 6 months to once a year.
- It also extends the validity period for approvals in critical sectors such as mining.
- The scope of the EIA regime is also set to shrink.
- Industries that previously fell under the categories that required a full assessment have been downgraded.
- The construction industry will be one such beneficiary, where only the largest projects will be scrutinised fully.
- Defence and national security installations were always understandably exempt.
- But, a vague new category of projects “involving other strategic considerations” will also now be free from public consultation requirements.

How serious is this?

- A deadly gas leak at LG Polymers’ Visakhapatnam plant in May 2020 killed 12 people and harmed hundreds.
- What came to light after the disaster was that the plant had been operating without a valid environmental clearance for decades.
- Given such incidents, weakening the EIA process is essentially anti-democratic.
- Seismic shifts in the local environment can threaten livelihoods, flood a valley or destroy a forest.
- For affected communities, public consultation is a referendum on such existential threats.
- To curtail this is to silence the voices that are scarcely heard otherwise.

- It seems that the government views environmental regulation as an impediment to the ease of doing business.
- During the nationwide coronavirus-led lockdown, the MoEF has been working swiftly to clear projects.
- It is even carrying out public hearings over video conference.
- Notably, the Minister for Environment and Forests and the Minister for Heavy Industries and Public Enterprises is the same person now.
- Two charges that are oppositional are vested with the same person and the resultant conflict of interest is debatable.

China & Its Pangolin Protection

17 June 2020—iasparliament

Why in news?

China accorded pangolin the highest level of protection and removed its scales from its list of approved traditional medicines.

What is China's latest decision?

- The Chinese State Forestry and Grassland Administration had issued a notice upgrading its protection of pangolins.
- It has also banned all commercial trade of the endangered mammal.
- The move came about after the 2020 edition of the “Chinese Pharmacopoeia” excluded traditional medicines made from four species.
- This 2020 edition also listed alternatives sourced from species which are not endangered.

COVID-19: Lockdown in India may have Saved 630 Lives, \$690 million, says study

New Delhi

The COVID-19 lockdown-led reduction in air pollution levels across five Indian cities in India, including Delhi and Mumbai, may have prevented about 630 premature deaths, and saved USD 690 million in health costs in the country, according to a new study.

Scientists, including those from the University of Surrey in the UK, assessed the levels of harmful fine particulate matter (PM2.5) from vehicles and other sources in five Indian cities—Delhi, Mumbai, Kolkata, Chennai and Hyderabad—since the beginning of the lockdown period.

The study, published in the journal *Sustainable Cities and Society*, compared these lockdown PM2.5 figures from 25 March up until 11 May, with those from similar periods of the preceding five years, and found that the measure reduced pollution levels in all these places.

According to the scientists, during this period, the levels of these harmful air pollutants reduced by 10 per cent in Mumbai, and by up to 54 per cent in Delhi. “The percentage reduction for the other cities ranged from 24 to 32 per cent, which were slightly smaller than the measured values for Delhi and Mumbai,” the scientists noted in the study.

“While the reduction in PM2.5 pollution may not be surprising, the size of the reduction should make us all take notice of the impact we have been having on the planet,” said Prashant Kumar, a co-author of the study from the University of Surrey.