

## Nutritionally rich, Plant-based diet is associated with Healthy Heart: Study

**A**CCORDING to two studies published in the *Journal of the American Heart Association*, researchers have discovered that eating a diet rich in plant-based foods may reduce the risk of heart diseases in both young adults and older (postmenopausal) women.

The first study (<https://doi.org/10.1161/JAHA.120.020718>) investigated whether long-term consumption of a plant-based diet and a shift toward a plant-based diet starting in young adulthood are associated with reducing the risk of Cardiovascular Diseases (CVDs) in midlife. This was a long term study of 4,946 adults enrolled in the Coronary Artery Risk Development in Young Adults (CARDIA) that showed that the top 20 per cent with the healthiest diets were 52 per cent less likely to develop cardiovascular disease. The researchers also discovered that changing your diet pattern at any stage in life can have a beneficial effect on heart.

Another study (<https://doi.org/10.1161/JAHA.121.021515>) analyzed whether postmenopausal women who followed the ‘Portfolio Diet’ experienced fewer heart disease events. This study included 123,330 women in the US who participated in the Women’s Health Initiative, a long-term national study looking at risk factors, prevention and early detection of serious health conditions in postmenopausal women.

The ‘Portfolio Diet’ consists of nuts, plant protein from soy, beans or tofu, viscous soluble fibre from barley, oats, okra, eggplant, apples, oranges and berries, plant sterols from enriched foods, and monounsaturated fats from olive and canola oil and avocados. These women also limited their intake of saturated fats and dietary cholesterol. The results show that women who followed the plant-based ‘Portfolio Diet’ with great adherence were less likely to develop any kind of cardiovascular disease, coronary heart disease and heart failure.

### References

<https://doi.org/10.1161/JAHA.120.020718>

<https://doi.org/10.1161/JAHA.121.021515>

Source: American Heart Association, News Release

## Study finds India’s National School Meal Programme Linked to Improved Growth in Children

**W**OMEN who received free meals in primary school have children with improved linear growth, according to a study by researchers at the International Food Policy Research Institute (IFPRI).

India is home to the highest number of undernourished children and the largest school feeding programme in the world — the Mid-Day Meal (MDM) scheme — yet long-term programme benefits on nutrition are unknown. As school feeding programmes target children outside the highest-return “first 1000-days” window spanning from conception until a child’s second birthday, they have not been a focal point in the global agenda to address stunting. School meals benefit education and nutrition in participants, but no studies have examined whether benefits carry over to their children.

“Findings from previous evaluations of India’s MDM scheme have shown a positive association with beneficiaries’ school attendance, learning achievement, hunger and protein-energy malnutrition, and resilience to health shocks such as drought — all of which may have carryover benefits to children born to mothers who participated in the programme,” says study co-author, Harold Alderman.

The study, “Intergenerational nutrition benefits of India’s national school feeding programme”, co-authored by University of Washington’s Suman Chakrabarti and IFPRI’s Samuel Scott, Harold Alderman, Purnima Menon, and Daniel Gilligan, was published in *Nature Communications*.

The authors used nationally representative data on mothers and their children spanning 1993 to 2016 to assess whether MDM supports intergenerational improvements in child linear growth. Further, they suggest a potential pathway through which school feeding programmes may have intergenerational effects on child nutrition outcomes.

The study found that investments made in school meals in previous decades were associated with improvements in future child linear growth. “Our findings suggest that intervening during the primary school years can make important contributions to reducing future child stunting, particularly given the cumulative exposure that is possible through school feeding programmes,” explains study co-author Suman Chakrabarti.

Study results also show that school meals may contribute to education, later fertility decisions, and access to health care, reducing the risk of undernutrition in the next generation. “School feeding programs such as India’s MDM scheme have the potential for stimulating population-level stunting reduction as they are implemented at scale and target multiple underlying determinants of undernutrition in vulnerable groups,” explains study co-author Samuel Scott.

Importantly, further research is required to understand whether improving the quality or quantity of meals provided and extending the program beyond primary school might further enhance its benefits.

Source: International Food Policy Research Institute (IFPRI), Press Release



Image credit: pixabay.com

## All Mushrooms are Not Mushrooming!

**M**USHROOMS are fascinating gifts of nature. These are spotted in a variety of habitats and can co-exist with other species without putting any stress on the existing resources as they have mastered the art of surviving on what is left by others.

The ancient tales and fables have interesting mentions of explorations that were undertaken to spot those enigmatic mushrooms and the perks associated with the discoveries were in the form of treasures and fascinating encounters. Today also, we are exploring and taking field trips to find these enigmatic species in a variety of habitats, but explorations are done from a resource utilisation point and with a scientific perspective.

Many of us see these umbrella-shaped structures as delicacy and food and *Mycophiles*, the mushroom lovers, will tell you how rewarding one feels spotting them while you are on a spree. Collections of morels and truffles are priced as gold.

Scientists, especially Mycologists, have spent years in the field and in their labs to understand these. With various techniques and procedures, mycologists have unravelled their origin, their diversity, the structural details of how they grow and proliferate. For consumers, the fruiting body, mostly with a shaft and a cap, is a bounty. For mycologists, the hidden half, that remains either on the ground or within the habitat is interesting. The tufted and branching hyphae, the spreading mycelia, and how these develop, grow, and suddenly give rise to the fruiting body and then the spores are interesting.

It is through the efforts of the scores of specialist mycologists that over the last few years several research papers, books, and proceedings have been published and many facets have been brought into the public domain.

However, not all the mushrooms are mushrooming. Just like other organisms these too are under various degrees of threat. The anthropogenic intervention (grazing, changing land use pattern), the unscientific methods of collection, habitat destruction, and habitat fragmentation have resulted in the loss of many species. Besides, the more recent interventions such as change in climate, pollution, and forest fires are resulting in dwindling numbers and species of mushrooms.

Indian Mycologists have put in great efforts to study these and have sought the attention of policymakers to devise conservation programmes for this interesting group of organisms and advocated to have a red-list of mushrooms so that efforts and scientific interventions are made to conserve them.



Image credit: pxfuel

Many of the mushrooms including *Albatrellus sps* and *Allantula sps*, have been commercially exploited to extinction. It is now difficult to spot the gourmets, truffles, and morels in the wild in many places in India where ample collections were made earlier. Though oysters and puffballs can be cultivated easily and on a variety of refugia, some are not amenable to cultivation. Mycologists have been trying hard to cultivate morels and gourmets but with little success.

Scientists are collaborating with the industry to develop a better understanding of the substrates, alternate methods of culturing, and growing. Many mushrooms are symbiotic in their association and have high fidelity values. They believe in the theory 'together we grow', and don't get surprised if you see a mushroom within the mushroom. Many have mycorrhizal associations with other fungi, and without those, they cannot survive.

Today, we need a young talented pool of students, nature lovers, field botanists, lab workers, and local people from (mushroom hotspots) to work together and invest in the bioprospecting of these incredible natural bounties. Mushrooms too need help for mushrooming.

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# World Food Day 2021

## Pledge to Achieve Zero

Image credit: unsplash.com/



**T**HE Food and Agriculture Organization (FAO) is the oldest permanent specialised agency of the UN established on 16 October 1945. The main aim was eliminating hunger, improving nutrition and standard of living by increasing agricultural productivity and ensuring food security for all.

Global hunger has always been in focus. Sadly, in spite of all the sincere efforts worldwide, the problem of global hunger is on the rise, chiefly due to man-made factors. Wars, climate crisis, migrations, faulty agri-food systems, food loss and food wastage have escalated this problem. To add to the woes, COVID-19 worsened the situation. Defeating this multi-headed Hydra is going to be a Herculean task. It is predicted that the pandemic will cast its shadow for at least a decade. The problem of hunger will continue to haunt us for a decade, swaying us far away from the Sustainable Development Goals (SDGs).

The SDGs are 17 interlinked goals charted by the UN during the UN Sustainable Development Summit in New York in September 2015 and accepted by all member countries. Of these SGD 2 is Zero Hunger and SGD 12 is responsible for Consumption and Production. The three sectors – economic, socio-cultural and environmental – need to come together if we want to achieve the goals that aim at ending poverty and all deprivations at the global level.

This year's edition of *The State of Food Security and Nutrition in the World 2021* has set the danger bells ringing. The report jointly published in July by FAO, IFAID,

UNICEF, WFP and WHO revealed some shocking figures. As per the report published on fao.org, "It is estimated that between 720-811 million people in the world faced hunger in 2020. Considering the middle-projected range (768 million), 118 million more people were facing hunger in 2020 than in 2019 or as many as 161 million, considering the upper bound of the range.

Of the total number of undernourished people in 2020, 418 million live in Asia; 282 million live in Africa and 60 million live in Latin America and the Caribbean. The report also mentioned that one in three people (2.37 billion) were threatened by moderate to severe food security in 2020 and this figure was up by 320 million than the previous year's figure.

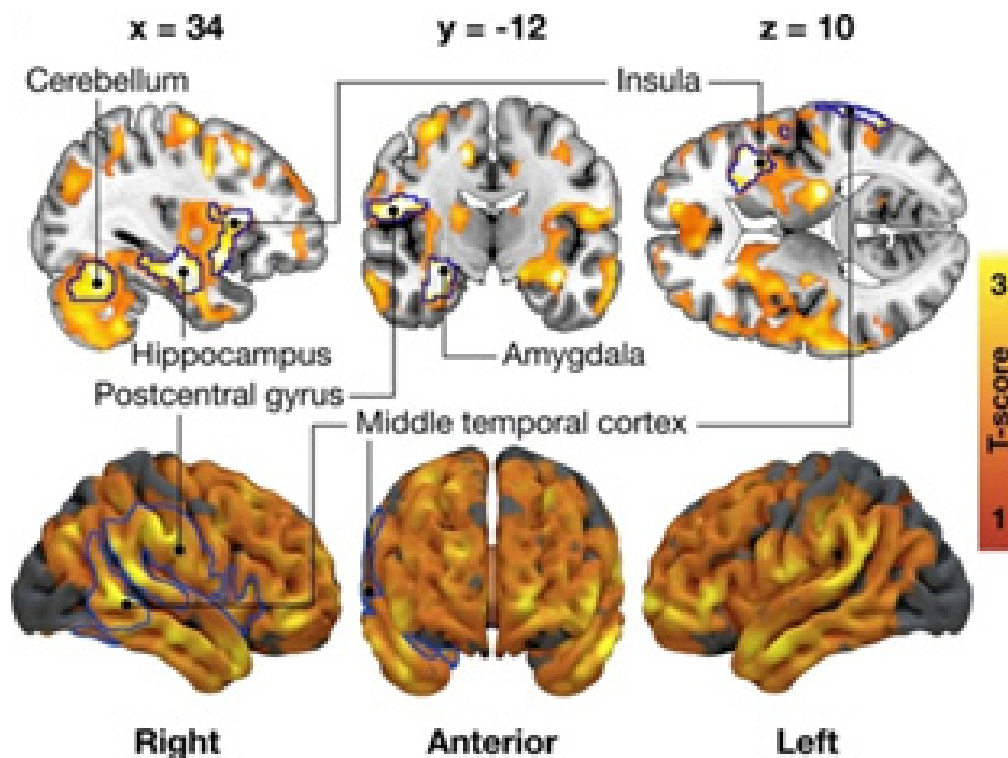
While obesity was on the rise, millions struggled to have even one meal. Malnutrition affected all age groups. Children under five were the worst hit. As these are the formative years the effects will no doubt be long-lasting. Almost 194 million have suffered growth problems while 45 million suffer from wasting. This indeed is a huge setback to achieve SDG2 by 2030. It is estimated that the goal will be missed by 660 million. This is the number of people who may still face hunger in 2030. This is a clarion call to gear up and work collectively towards finding and implementing solutions to end hunger.

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# Researchers Discover Connection between Brain's Opioid System and Eating Behaviour

Brain regulation of feeding behaviour traits has remained incompletely understood. In their latest study, researchers at the Turku PET Centre, Finland, discovered a connection between the function of the opioid system and food craving triggered by appetitive external stimuli.



Brain regions where connections between the opioid system and eating triggered by external stimuli were discovered. Yellow colour indicates a stronger connection.

**A**NIMAL studies have established that the brain's opioid and endocannabinoid systems are important in regulating eating behaviour and mediate the food reward experience. For instance, alterations in these systems' signalling have been associated with obesity. In general, both internal signals of the body, such as fluctuation in blood sugar levels and external stimuli, such as food advertisements, can spark an appetite in humans.

In their new study, researchers at the University of Turku, Finland, investigated the connection between the brain's opioid and endocannabinoid signalling and different types of eating behaviour. They discovered that the function of the opioid system is connected to eating triggered by external stimuli.

The less binding sites there were for the opioids, the greater was the tendency to eat in response to external stimuli,

such as seeing appetising food. Moreover, the number of binding sites for endocannabinoids was connected to several different types of eating behaviour, describes first author, Doctoral Candidate Tatu Kantonen from the University of Turku.

According to Kantonen, the results indicate that especially the opioid system could be a potential target for anti-obesity drugs in humans. The research data was obtained from the AIVO database hosted by the Turku PET Centre. The research was funded by the Academy of Finland.

The study was published in *Translational Psychiatry*.

Source: University of Turku, Press Release