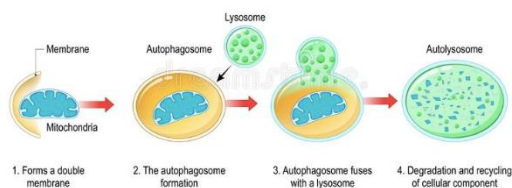


## Hara hachi bu

- Hara hachi bu is a Japanese term meaning “Eat until you're 80% full.” It originated in the city of Okinawa, where people use this advice as a way to control their eating habits.
- Autophagy is a self-digesting mechanism responsible for the removal of damaged organelles, malformed proteins during biosynthesis, and non-functional long-lived proteins by the lysosome.

### Autophagy

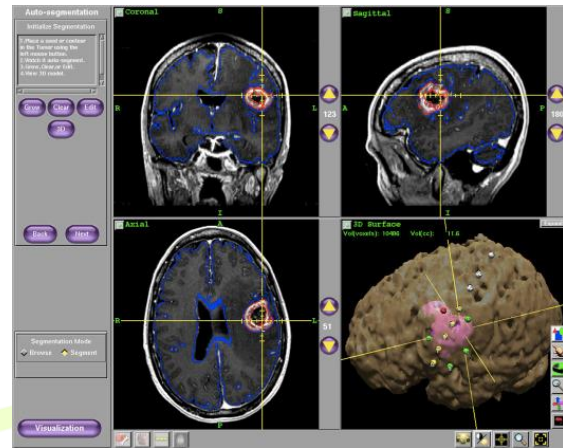


THE HINDU

## Autophagy

- Electrocorticography (ECoG), or intracranial electroencephalography (iEEG), is a type of electrophysiological monitoring that uses electrodes placed directly on the exposed surface of the brain to record electrical activity from the cerebral cortex.
- In contrast, conventional electroencephalography (EEG)

electrodes monitor this activity from outside the skull. ECoG may be performed either in the operating room during surgery (intraoperative ECoG) or outside of surgery (extraoperative ECoG).



THE HINDU

## Time dilation

- The Chicxulub crater is an impact crater buried underneath the Yucatán Peninsula in Mexico. Its center is offshore near the communities of Chicxulub Puerto and Chicxulub Pueblo, after which the crater is named.
- It was formed when a large asteroid, about 10 kilometers (6.2 miles) in diameter, struck the Earth.
- The crater is estimated to be 180 kilometers (110 miles) in diameter and 20 kilometers (12 miles) in depth. It is one of the largest confirmed impact structures on Earth, and the only one whose peak

ring is intact and directly accessible for scientific research.

- The crater was discovered by Antonio Camargo and Glen Penfield, geophysicists who had been looking for petroleum in the Yucatán Peninsula during the late 1970s.



**THE HINDU**

### Trees on forest edge vs interior

- In net, forests store more carbon dioxide than they release, and an estimated 30% of carbon emissions from emitting fossil fuels are

absorbed by the forest, making them a terrestrial carbon sink.

- Trees absorb carbon dioxide (CO<sub>2</sub>), release oxygen by way of photosynthesis, and store carbon in their trunks.
- When they shed, soil microbes work to decompose the leaves and other organic matter that releases the trapped carbon dioxide. A major prong of countries' climate change strategy, including India's, is to increase the terrestrial sink area.
- The textbook assumption was that trees at forest edges release and store carbon at similar rates as forest interiors.
- Trees on the edges grow nearly twice as fast as interior trees.
- Trees on the edge don't have competition with the interior forest, so they get more light.
- Warmer temperatures at the edge of the forest caused leaves and organic matter to decompose faster, as it forced soil microorganisms to work harder and release more carbon dioxide than their cooler, more shaded peers in the forest interior.
- But, in urban forests, where the ground was significantly hotter and drier, those soils stopped releasing as much carbon.
- Conservationists have noted that plantations outside forests don't

capture carbon efficiently and don't make up for biodiversity losses.

- Indian context The India State of Forest Report (2021) released in January found that nearly 28% of the forest cover is outside the recorded forest area. About 12% of the forests classified as 'very dense' is also outside the recorded areas.
- Brings in man-made plantations of cash crops such as tea and coffee plantations and mango orchards and even tree-lined avenues in densely built-up cities were being classified as 'forests'.

#### **THE HINDU**

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### **Co-evolving system**

#### **Co-evolving systems**

- A population of flies is infected by the pathogen and the infection is allowed to take its course.
- Among the infected flies, only those that survive the infection, namely the ones that have the best immune systems to combat the pathogen, are taken to breed the next generation.
- Having enemies makes the organism stronger.
- Just as the host evolves a stronger, more resistant immune system when pitted against a co-evolving pathogen, the pathogen also

becomes more virulent when allowed to evolve against a co-evolving host.

- The experiment is the first to study co-evolving insect pathogen pair.

#### **THE HINDU**

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