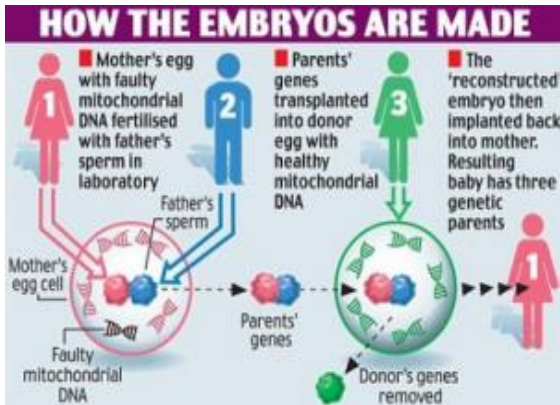

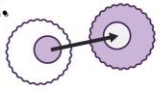
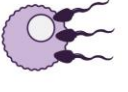
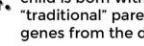


Mitochondrial therapy



combating mitochondrial disease

1.  a female donor donates an egg with a healthy mitochondria
2.  nucleus of mother's egg is removed and placed into donor's egg
3.  donor egg (with mother's nucleus) is fertilized and prepared for gestation
4.  child is born with DNA reflecting that of its "traditional" parents, but also with 20-25 genes from the donor's mitochondria

SOURCE: AMERICAN SOCIETY FOR REPRODUCTIVE MEDICINE

- Eight years after the U.K. became the first country in the world to approve a reproductive technique known as mitochondrial replacement therapy (MRT), "less than five" children have been born using the procedure, as of April 2023.
- Last year, Australia became the second country to approve this therapy.
- Three parent IVF Mitochondria replacement involves transferring nuclear genetic material from a mother's egg into a donor egg that

has had its nuclear DNA removed so the embryo does not inherit the mitochondrial disease. This would allow a woman carrying mitochondrial diseases to have healthy children.

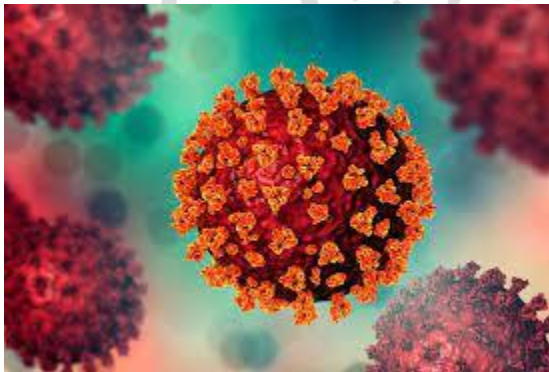
- The resulting IVF embryo combines sperm and egg from the biological parents, while the mitochondria is from the donor's egg.
- As a result, the baby has DNA from each of its parents, along with 37 genes from the donor.
- This is the reason why this technique is also called three parent IVF (in vitro fertilisation)
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THE HINDU

Longer covid

- Some people who have been infected with the virus that causes COVID-19 can experience long-term effects from their infection, known as Long COVID or Post-COVID Conditions (PCC).
- Long COVID occurs more often in people who had severe COVID-19 illness, but anyone who has been infected with the virus that causes COVID-19 can experience it.
- People who are not vaccinated against COVID-19 and become infected may have a higher risk of developing Long COVID compared to people who have been vaccinated



THE HINDU

Hammerhead shark

- As per a new study (Science), hammerhead sharks hold their breath to maintain body temperature as they hunt in deep, cold waters.



- The previously unobserved phenomenon, which has broad similarities to breath-holding thermoregulation strategies employed by marine mammals, may be widespread among other deep-diving sharks and fish.
- Like most fish, sharks are fully ectothermic, and their body temperatures are largely regulated by their immediate environment.

What are ectotherm??

- An ectotherm is an organism in which internal physiological sources of heat are of relatively small or of quite negligible importance in controlling body temperature.
- Such organisms rely on environmental heat sources, which permit them to operate at very economical metabolic rates.

THE HINDU

Homo sapien adaptation

- Homo species particularly Homo sapiens were uniquely equipped to adapt to diverse environments

(Science), which may have enabled our species and that of our closely related ancestors to survive in highly fluctuating Pleistocene environments. .

- Whether this is because our species was uniquely successful at adapting to Pleistocene environments, because we outcompeted other contemporary Homo species, or because we simply outlived others by chance remains largely unknown.



THE HINDU

Palghat gap



- The Palghat Gap is about 40 km wide, with the steep Nilgiris and Anamalai hills, both rising above 2,000 msl, on either side.
- The Palghat Gap has historically been important as a significant gateway into the State of Kerala.
- It is a corridor for both roads and railways that connects Coimbatore with Palakkad.
- The Bharathappuzha river flows through it. In contrast to the tropical rainforests of the Western Ghats, the vegetation in the Palghat Gap is classified as dry evergreen forest.
- It also marks a divide in the flora and fauna of the region.
- For example, several species of frogs are found only on one side of the Palghat Gap.
- The origin of the Palghat Gap also stems from the drift of continental shelves after Australia and Africa broke off from the Gondwana landmass. India and Madagascar remained as one landmass until large-scale volcanic activity split the two, the split occurring where the Palghat Gap is located this is mirrored in the Ranotsara Gap on the eastern face of Madagascar.
- It has been speculated that one reason for the biogeographic distinctions in species in north and south of the Gap could be due to an

ancient river or an incursion of the sea in the distant past. Elephant populations on the Nilgiris side differ in their mitochondrial DNA from elephants in the Anamalai and the Periyar sanctuaries.

- One study from IISc Bangalore has analyzed DNA sequence divergence data in populations of the White-bellied Shortwing, an endemic and threatened bird.
- Birds found around Ooty and Baba Budan are called the Nilgiri blue robin; the Anamalai group differs slightly in appearance and is called the Whitebellied blue robin.



THE HINDU
