

## What if we had no memories?

As discussed before, implicit memories do not require conscious or deliberate thought while explicit memories do. With conscious thought, we can relive our past, experience the present, and imagine the future. In other words, we can mentally travel in time. This ability depends critically on episodic memories, which are controlled by the hippocampus.

What if we had no hippocampi? This is answered by the case of a patient with missing hippocampi, known to researchers as HM (see Box 1: The Case of HM). Without hippocampi, HM struggled to recollect his past, and was unable to form new memories, or think about his future. This ability to mentally travel in time makes us conscious beings, a uniquely human trait.

## Conclusion

While memories arise from our experiences in life, decades of research show us that our memories are not permanent; they change in form and/or accuracy. Current research is focussed on exploring all possible factors that can cause a memory to be altered. Knowing these factors can help provide therapy to people who suffer from memory disorders.

What we do understand, however, is that our memories are essential to us. We use them to draw references from the past to plan and predict our future. Both good and bad memories help shape our thinking, decision-making and problem-solving abilities. While negative experiences remind us of what can be detrimental and needs to be avoided; positive experiences encourage us to show certain other behaviours.



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## Feathers and Warm Blood: Dino facts that you didn't know

– Vignesh Narayan



The different kinds of birds found today trace their ancestry back to dinosaurs. About 66 million years ago, a mass extinction event (probably an asteroid hitting the earth) decimated most of the dinosaur population.

The few that were left evolved into the birds that we see today. What few people know is that over the past two decades, archaeologists have unearthed thousands of fossils of dinosaurs that had feathers!

'Proto-feathers' or primitive feathers have been found on the fossils of a variety of dinosaurs, from meat-eating bird ancestors to plant-eating dinosaurs that were wiped out in the extinction event.

Using information from fossilized pigment cells, even the colour of the feathers of some dinosaur species have been worked out! According to researchers at the Yale university, *Anchiornis huxleyi*, a feathered dinosaur that lived during the late Jurassic period in China, sported grey plumage, a reddish Mohawk and white feathers on its wings and legs, which ended in black tips.

If feathers were not enough, researchers have used different types of measurements on the fossils of dinosaurs to conclude that the body temperatures of these gigantic creatures were between 36°C and 38°C, making them warm-blooded animals like birds, and not cold-blooded like the reptiles that we have today.

We are moving away from an image of dinosaurs as large cold-blooded reptiles. Instead we are beginning to see them as warm-blooded and brightly coloured animals that used feathers to fly and attract mates, much like birds do today.

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