

SHORTNEWS:

1.SNOWFLAKE YEAST

Context: A recent study published in *Science Advances* by NCBS Bengaluru and Georgia Tech reveals that **multicellular life may have evolved not just through genetic changes**, but also via simple physical and chemical processes, using snowflake yeast as a model.

About Snowflake Yeast

- **Snowflake yeast is a laboratory-evolved strain of *Saccharomyces cerevisiae*** (a single-celled yeast) that has been modified through evolutionary processes to form multicellular clusters
 - It resembles snowflakes, due to incomplete cell division.
- **Composition:** These clusters are **still composed of individual yeast cells connected by their cell walls** while appearing multicellular.
- **Multicellular Behaviour:** They exhibit **emergent multicellular behaviors, including the formation of dense, branched structures and metabolically driven flows** that aid in nutrient acquisition.
- **Significance:** Snowflake yeast **provides a model system for studying the evolution of multicellularity** and the transition from unicellular to multicellular life.

2.OPERATION ‘MIDNIGHT HAMMER’

Context: The US conducted precision strikes on three of Iran’s nuclear facilities, codenamed ‘Operation Midnight Hammer’.

About Operation Midnight Hammer

- **Objective:** To severely **degrade Iran’s nuclear programme**.
- **Targets:** The US strike targeted **three of Iran’s most sensitive nuclear facilities**
 - **Natanz:** It is Iran’s **primary uranium enrichment site**.
 - **Isfahan:** The facility encompasses research reactors and the **Uranium Conversion Facility (To convert ‘yellowcake’ uranium to uranium hexafluoride** (the raw input for centrifuges).
 - **Fordow Enrichment Site:** It houses **2,000 operational centrifuges and is built 90 meters deep** inside a mountain.
- **The Strike Package:** The covert operation featured,
 - **The B-2 Spirit bombers dropping the Massive Ordnance Penetrators (GBU-57s)** on Natanz and Fordow
 - The US guided **missile submarine launched more than 24 Tomahawk missiles** at Isfahan.
- **Execution:** The operation marked the **longest B-2 mission since 2001** and the **first operational employment of the GBU-57**.

About The Tomahawk Land Attack Missile (TLAM)

- It is an American **long-range, all-weather, jet-powered, subsonic cruise missile** that is primarily used by the United States Navy and Royal Navy in **ship and submarine-based land-attack operations**.

- **Developed by:** Tomahawk was first **manufactured by General Dynamics and developed by the Applied Physics Laboratory of Johns Hopkins University**

3. WORLD SICKLE CELL DAY

Context: On **World Sickle Cell Awareness Day 2025 (19th June)**, DEPwD launched a nationwide drive to raise awareness and promote management of Sickle Cell Disease.

- The theme for **2025** is: **“Global Action, Local Impact: Empowering Communities for Effective Self-Advocacy.”**

What is Sickle Cell Disease (SCD)?

- Sickle cell disease is a **group of inherited blood disorders** caused by a genetic mutation that affects haemoglobin — the oxygen-carrying protein in red blood cells.
- Affected red blood cells become rigid, sticky, and shaped like a **sickle** or a crescent, rather than smooth and round.
- These abnormal cells can block blood flow, reduce oxygen delivery, and cause pain, anaemia, and other complications.

Prevalence in India

- India carries the **second-highest global burden** of sickle cell disease.
- An estimated **1 million Indians** are affected, mostly from tribal communities.
- **High-Prevalence States:** Odisha, Jharkhand, Chhattisgarh, Madhya Pradesh, and Maharashtra.
- According to a **2024 Meta-Analysis Data**, SCD prevalence is **1.17%**, and sickle cell trait (SCT) prevalence is **5.9%**, particularly high in tribal regions.

4. WORLD TEAM BLITZ CHAMPIONSHIPS

Context: Indian chess player **Divya Deshmukh** defeated World No. 1 **Hou Yifan** at the World Team Blitz Championships in London.

- **Grandmaster Koneru Humpy** won the **2024 FIDE World Rapid Championship** in New York.

About the World Team Blitz Championships

- It is an **international chess tournament organized by FIDE (the International Chess Federation)**, where teams from different countries compete in the fast-paced **“blitz”** format.
- In blitz chess, **each player gets only a few minutes** to make all their moves, making the games **quick, intense, and exciting**.

Format

The championship consisted of two major events:

Rapid Segment

- **Format:** 12-round Swiss system
- **Time Control:** 15 minutes per player with an increment of 10 seconds per move from move 1

Blitz Segment

- Round-robin tournament (Pools stage)

- Knockout tournament (Top 16 teams qualify)
- **Time Control:** 3 minutes per player with a 2-second increment per move from move 1