



CROSS & CLIMB  
MAKING THE ELIGIBLE ENTITLED

# CROSS & CLIMB ROHTAK

School of Research Based Learning & Competition

## Current Affairs - 28 April 2026



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### WHAT IS DOPAMINE?



Researchers recently showed for the first time that dopamine dysfunction in the entorhinal cortex, a critical memory-related brain region, contributes directly to impaired memory formation.

- Dopamine is a **hormone** and a type of **neurotransmitter**, or **chemical messenger**, made **in your brain**.
- Your **nervous system** uses it to send messages between nerve cells. These messages also travel between your brain and the rest of your body.
- This unique neurotransmitter **affects your body, brain, and behavior**.
- Dopamine is the chemical that **mediates pleasure** in the brain.
  - It is **released when your brain is expecting a reward**.
  - When you come to associate a **certain activity with pleasure**, mere **anticipation** may be enough to **raise dopamine levels**.
- It's a **big part of our unique human ability to think and plan**. It helps us **focus, work towards goals, and find things interesting**.
- Dopamine also plays a role in these **functions**:
  - **learning** and attention
  - **mood**
  - **movement**
  - heart rate
  - **kidney function**
  - blood vessel function
  - sleep
  - **pain processing**
  - lactation

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- **High or low dopamine levels** are associated with diseases including Parkinson's disease, restless legs syndrome, and attention deficit hyperactivity disorder (ADHD).
- Dopamine is also made in other parts of your body, where it acts as a hormone.
- Dopamine acts as a hormone to help:
  - relax or tighten your blood vessels when needed
  - control your salt levels and urine production
  - control how much insulin you make
  - slow down some parts of your digestion
- Dopamine is found in humans as well as animals, including both vertebrates and invertebrates.

### KEY FACTS ABOUT VITAMIN E

#### Vitamin E

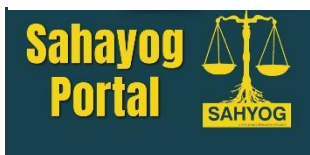


Researchers recently found that a daily 300 mg dose of vitamin E improves liver tissue in adults with metabolic dysfunction-associated steatohepatitis, a serious form of fatty liver disease where fat buildup triggers inflammation and damage in the liver.

- It is a **fat-soluble vitamin** with several forms, but **alpha-tocopherol** is the only one used by the human body.
- The body stores vitamin E in fatty tissue and the liver.
- **Functions:**
  - The main role of vitamin E is to act as an **antioxidant**, scavenging loose electrons—so-called “free radicals”—that can damage cells.
  - Vitamin E helps **keep your immune system healthy**, promotes **good eye health**, and supports **healthy skin**.
  - It helps **form red blood cells** and **widen blood vessels** to keep blood from clotting inside

- It helps the body use vitamin K.
- **Food Sources:**
  - Foods rich in vitamin E include **vegetable oils** such as canola and olive oils, **nuts, and seeds.**
  - **Meats, dairy, leafy greens, and fortified cereals** also have vitamin E.
- **People who have digestive disorders or do not absorb fat properly** (e.g., pancreatitis, cystic fibrosis, celiac disease) can develop a **vitamin E deficiency.**
- The following are common **signs of a deficiency:**
  - **Retinopathy (damage to the retina** of the eyes that can impair vision)
  - **Peripheral neuropathy (damage to the peripheral nerves,** usually in the hands or feet, causing weakness or pain)
  - **Ataxia (loss of control of body movements)**
  - **Decreased immune function**

### SAHAYOG PORTAL



The Delhi High Court has asked the Union government to clarify whether social media platform X Corp. should be required to participate in the Sahyog portal in cases linked to human trafficking, child trafficking and national security.

- It is an **online platform** launched in **2024** to help remove illegal content from the internet quickly.
- It **allows government agencies** to send takedown notices directly to social media platforms and other online intermediaries.
- It operates under **Section 79(3)(b) of the IT Act, 2000, giving it legal backing.**
- It ensures that intermediaries act fast while retaining safe harbour protections.
- **Nodal Ministry: Union Home Ministry**

- **Features of Sahayog Portal:**
  - **Centralised Communication:** Connects government agencies, state/UT nodal officers, and 65 online intermediaries in a single platform.
  - **Automated Takedown Notices:** Sends quick, documented notices to intermediaries for prompt removal of unlawful content.
  - **Legal Backing:** Operates under Section 79(3)(b) of the IT Act, 2000, ensuring legal enforcement and consequences for non-compliance.
  - **Separate from Section 69A:** Focuses on intermediaries' responsibility to disable unlawful content rather than government blocking powers.

### NILGIRI TAHR



- The Nilgiri Tahr is a mountain **ungulate endemic** to the southern part of the **Western Ghats**.
- It is also known by the **name Nilgiri Ibex or simply Ibex**. Locally the animal is called '**Varayaadu**'.
- It is the only **mountain ungulate** in southern India.
- **Habitat:** It inhabits the open **montane grassland** habitat of the southwestern ghats montane rain forests ecoregion.
- **Distribution:** It is found in the **Western Ghats** and in **states of Kerala and Tamil Nadu**.
  - The **Eravikulam National Park** (Kerala) has the highest density and largest surviving population of Nilgiri tahr.
- **Conservation Status:**
  - **IUCN:** Endangered
  - **Wildlife (Protection) Act of India, 1972:** Schedule I.
- **Threats:** Habitat loss due to rampant deforestation, competition with domestic livestock, hydroelectric projects in Nilgiri tahr habitat, and monoculture plantations.

### STRAIT OF HORMUZ: A HISTORIC BATTLEGROUND OF EMPIRES

The Strait of Hormuz has emerged as the central flashpoint in the ongoing West Asia conflict, with Iran restricting passage after US-Israeli strikes and the Donald Trump administration responding with a naval blockade.

However, the strait's importance is not new. Owing to its strategic location controlling global energy flows, it has **historically been a site of intense imperial competition**, especially during the 18th and 19th centuries when colonial powers like United Kingdom used naval strength and diplomacy to dominate trade routes through the region.

#### **16<sup>th</sup> Century: Portuguese Conquest and Control**

- The Strait of Hormuz was originally controlled by the wealthy Kingdom of Hormuz, a major trade hub linking India, Persia, Arabia, and East Africa.
- **In 1515**, the Portuguese Empire seized Hormuz Island and transformed it into a fortified toll point, dominating and taxing lucrative spice and silk trade routes throughout the 16th century.
- By the early 17th century, rising competition led the **English East India Company** to challenge Portuguese control.
- In 1622, a strategic alliance between the **British**, the **Dutch East India Company**, and the **Safavid ruler Shah Abbas I** successfully defeated the Portuguese, ending nearly a century of Iberian dominance over the strait.

#### **7<sup>th</sup>–18<sup>th</sup> Century Rivalry in the Strait of Hormuz**

- After the fall of Portuguese control, the Strait of Hormuz entered a phase of **intense rivalry** between the English East India Company and the Dutch East India Company.
- The Dutch, operating as a quasi-sovereign power with military authority, dominated the region during much of the **17th century** from their base in **Bandar Abbas**, leveraging a strong navy and aggressive trade practices to control the spice trade.
- By the **18th century**, the Dutch East India Company weakened due to overextension, internal corruption, and high administrative costs in its Asian territories.

### Models of Control in the Strait of Hormuz

- The Portuguese Empire relied on **direct military dominance** over the Strait of Hormuz, constructing large fortifications and imposing taxes on passing trade.
- However, this heavily militarised system proved costly and unsustainable over time.
- In contrast, the United Kingdom adopted a more cost-effective and strategic approach, combining **naval power with diplomacy**.
- By integrating local rulers into the Trucial system, Britain allowed internal autonomy while controlling foreign policy, defence, and trade.

### 20th Century Shift: Oil and Strategic Control in the Strait of Hormuz

- At the turn of the 20th century, British priorities in the Strait of Hormuz shifted **from trade protection to energy security**.
- In 1901, financier William Knox D'Arcy secured oil exploration rights in Persia, leading to a major breakthrough in 1908 when George Bernard Reynolds discovered oil at Masjed Soleyman—the first large commercial strike in the region.
- **Formation of Anglo-Persian Oil Company and State Control**
  - Following this discovery, the **Anglo-Persian Oil Company** was established in 1909.
  - Recognising oil's strategic importance, especially after Winston Churchill shifted the navy from coal to oil, the British government acquired a 51% stake in the company by 1914, ensuring direct control over energy resources.
- **Transformation of the Strait's Role**
  - The strait evolved from a trade chokepoint into a critical energy corridor, facilitating the transport of West Asian oil to Britain.
  - This marked a major shift in global geopolitics, aligning with the growing importance of petroleum during and after the First World War.
  - Through treaty-based control over Gulf states, **Britain maintained its dominance in the region until 1971**, when it formally withdrew its military presence, marking the end of the Trucial States era.

### PRADHAN MANTRI RASHTRIYA BAL PURASKAR



Pradhan Mantri  
Rashtriya Bal Puraskar

- It is a prestigious national honour conferred **annually** by the **Government of India**.

- It is awarded to children for exceptional excellence in **Bravery, Art & Culture**, Environment, Social Service, Science & Technology, and Sports.
- The Pradhan Mantri Rashtriya Bal Puraskar organized by the Ministry of Women and Child Development Government of India.
- **Eligibility for Pradhan Mantri Rashtriya Bal Puraskar:**
  - A child should be an **Indian Citizen**.
  - **Age:** A child above the **age of 5 years and not exceeding 18 years** (as of 31st July of respective year).
  - The act/incident/achievement should have been within 2 years of the last date of receipt of application/nomination for the year of consideration.
  - The number of **awards will be 25**, however, any relaxation to this maximum number may be permitted at the discretion of the National Selection Committee.
  - Each awardee will receive a **medal, certificate and citation booklet**.

### CYBORG BOTANY



- It is a hybrid system that **integrates living plants with electronic components**.
- It is an intersection of biology, materials science, and engineering.
- The word 'cyborg' itself comes from 'cybernetic organism', a concept long associated with science fiction.
- Its goal is to use **the biological processes of living plants** and merge them with artificial electronic functionality.

- **Significance:**
  - Plants face two broad types of stress: **biotic stress**, such as pest infestations and disease, and **abiotic stress**, such as drought and extreme temperatures.
  - If a sensor embedded in a crop plant **could flag a moisture deficit** or a disease signal days or weeks before the physical symptoms appear.
  - **Farmers could intervene early** by applying water and nutrients or treatments only where and when they are needed.

### INDIA-NEW ZEALAND FTA - KEY FEATURES AND STRATEGIC SIGNIFICANCE

- FTA is a pact between countries to reduce or eliminate tariffs, quotas, and trade barriers.
- It aims to enhance trade flows, investment, and economic integration while improving market access for goods and services.

#### Key Aspects of India-New Zealand FTA

- This is India's seventh FTA in the past five years, after agreements with Mauritius, the UAE, Australia, European Free Trade Association countries, the UK and Oman.
- **Tariff Liberalisation and Market Access**
  - The agreement provides duty-free or preferential access for a large number of Indian exports to New Zealand.
  - Sectors such as textiles, pharmaceuticals, engineering goods, and agricultural products are expected to benefit significantly.
  - This improves India's export competitiveness in a developed market.
- **Investment Commitments**
  - New Zealand has committed to **investing approximately \$20 billion in India** over a defined period.
  - The investment is expected to flow into infrastructure, renewable energy, food processing, and technology sectors.
  - This enhances capital availability and supports India's growth objectives.

- **Services Sector Opportunities**
  - The FTA includes provisions to facilitate the movement of professionals and service providers. Indian IT professionals, healthcare workers, and education service providers are likely to gain improved access.
  - This aligns with India's comparative advantage in services exports.
- **Agricultural Trade Balance**
  - New Zealand is a major exporter of dairy and agricultural products, which has been a sensitive area for India.
  - The agreement is expected to include safeguards or calibrated access to protect Indian farmers while enabling selective imports.
  - Balancing domestic interests with trade liberalisation remains a key feature.
- **Strategic and Geopolitical Significance**
  - The FTA strengthens India's engagement in the **Indo-Pacific region**.
  - It complements India's broader strategy of diversifying trade partnerships beyond traditional markets.
  - The agreement also signals India's renewed push towards bilateral trade agreements after exiting RCEP.
- **Expected Economic Impact**
  - The FTA is likely to boost bilateral trade volumes, which have remained modest compared to potential.
  - It will support India's goal of becoming a global manufacturing and export hub.
  - The investment inflows and technology partnerships can contribute to job creation and industrial growth.

### Challenges and Concerns

- There are concerns regarding **competition from New Zealand's agricultural exports, particularly dairy**.
- Domestic industries may require adjustment support and policy safeguards.
- Ensuring effective utilisation of market access remains critical, as seen in previous FTAs.