



High-Altitude Sickness

[Source: TH](#)

The recent death of a trekker from Kerala due to [high-altitude sickness](#) (HAS) or **Acute Mountain Sickness (AMS)** while attempting to scale a **peak in Uttarakhand** has brought attention to the dangers of trekking in the mountains.

- Popular trekking routes often exceed 3,000 meters, increasing the risk of **AMS** among unacclimatised trekkers.
- [High-altitude sickness](#) occurs when individuals ascend rapidly to elevations **above 2,400 meters**, without adequate acclimatisation.
 - As altitude rises, both air pressure and oxygen levels drop, causing hypoxia, which is a shortage of oxygen in the body's tissues.
 - **Symptoms** include headaches, nausea, fatigue, and shortness of breath.
- **Severe cases of HAS/AMS** can lead to **High Altitude Pulmonary Edema (HAPE)** and **High Altitude Cerebral Edema (HACE)**, both life-threatening conditions requiring immediate descent.
 - At high altitudes, the body adapts by increasing breathing (**can cause hyperventilation**) and producing more red blood cells, thickening the blood and straining the heart.
 - **HAPE causes lung fluid buildup**, and worsening breathing, while **HACE leads to confusion, hallucinations, and coma.**
- **Treatment Strategies:**
 - Supplemental oxygen or a portable hyperbaric chamber can help alleviate symptoms of **AMS** and **HACE** in emergencies.
 - Pharmacological treatments, such as **acetazolamide and dexamethasone**, may provide short-term relief.

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★ HOW TO SAFELY CLIMB A MOUNTAIN ★

Go Slow And Steady



Avoid climbing **> 300 - 500m** per day, depending on your fitness level.



Plan **1 rest day** for every **600 - 900m** ascent.



2 - 3 days - the time for your body to get used to higher altitudes before going **> 3,000m**.



1 - 1.5 litres - the **extra** amount of water to consume daily when at high altitude.



Excess caffeine + alcohol



Carbohydrate-rich diet

Stay Aware

12 - 24 hours timeframe for symptoms of altitude sickness to emerge upon reaching higher elevation.

1 - 2 days Time for altitude sickness symptoms to improve as body acclimatises.

AMS symptoms:

- Headache
- Dizziness
- Nausea
- Vomiting
- Fatigue
- Shortness of breath
- Sleep problems
- Appetite loss

HAPE/HACE symptoms:

- Confusion
- Shortness of breath
- Inability to walk
- Coughing white/ pink frothy substance
- Coma

300m

Altitude at which AMS symptoms often improve. If symptoms worsen, descend immediately.



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CCI Imposes Fine on Meta

[Source: HT](#)

Recently, the [Competition Commission of India \(CCI\)](#) imposed a penalty of Rs 213.14 crore on Meta for abusing its dominant position through [WhatsApp's 2021 privacy policy](#) update.

- This ruling **prohibits WhatsApp from sharing user data with other [Meta companies](#)** for advertising purposes and mandates that user consent must be obtained for any data sharing.
 - The CCI found that WhatsApp's 2021 policy update **forced users to accept expanded data collection terms without an option to opt out**, constituting an unfair condition under the [Competition Act](#).
 - The new policy may enable commercial exploitation and political micro-targeting.
 - The ruling mandates WhatsApp to provide clear explanations regarding data-sharing practices, enhancing transparency for users.
- WhatsApp's policy also conflicts with the [Srikrishna Committee report](#), which forms the basis of the [Data Protection Bill 2019](#), including **data localisation** and **limiting data use to its original purpose**.
- The [Competition Commission of India \(CCI\)](#) is a **statutory body** responsible for enforcing the **Competition Act of 2002**.

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Red Sea

[Source: HT](#)

Seventeen foreign tourists are missing after a **yacht capsized in the Red Sea off the coast of Egypt**, amid warnings of turbulent sea conditions.

- The **Red Sea** is a major hub for international tourism, known for its diving spots and vibrant marine life.
- **Red Sea:** It is an inlet of the [Indian Ocean](#) between **Africa and Asia**.
 - An inlet is a narrow strip of water that goes from a sea or lake into the land or between islands
- **Bordering Countries:** Egypt, Saudi Arabia, Yemen, Sudan, Eritrea and Djibouti.
 - Red Sea, connected to the Indian Ocean in the south through the **Bab el Mandeb strait and the Gulf of Aden**.
 - The northern Red Sea features the Sinai Peninsula, the Gulf of Aqaba, and the Gulf of Suez, which leads to the [Suez Canal](#).
- It occupies a part of the [Great Rift Valley](#) (Afro-Arabian Rift Valley).



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Dark Tourism

[Source: TH](#)

- The war in **Ukraine** has sparked the rise of "**dark tourism**," where visitors travel to conflict **zones to witness the aftermath of war and its effects** on local communities. This type of tourism, also known as **thanatourism or grief tourism**, involves visiting sites tied to death and tragedy.
- Ukrainian officials and residents have mixed reactions, viewing it as either a source of income or "**blood money**."
- **Dark Tourism India:**
 - **Kuldhara Village, Jaisalmer:** An abandoned village with numerous myths and eerie(strange and frightening) stories, now a historical site managed by the [Archaeological Survey of India](#).
 - **Cellular Jail, Port Blair (Kala Pani):** A colonial-era prison where freedom fighters endured severe torture; now a **national museum** showcasing India's dark history under British rule.
 - **Roopkund Lake, Uttarakhand (Skeleton Lake):** A mysterious lake with skeletal remains of hundreds, whose origins remain unsolved.
 - **Lothal, Gujarat:** A significant site of the [Indus Valley Civilization](#), **Lothal** is an ancient city offering a glimpse into one of the oldest urban settlements in the world.
 - **Dumas Beach, Surat:** Known for its haunted reputation and eerie folklore, attracts paranormal enthusiasts.

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Moire Materials and Superconductivity

Source: TH

Why in News?

A recent **Nature study** found that **moiré materials** made from [semiconductors](#) can also be [superconducting](#), a property **previously** thought to be exclusive to [graphene](#).

What are the Key Facts About Moiré Materials?

- **About:** Moire materials are materials having **unique properties** due to the **interference pattern** formed when **two periodic structures are overlaid at a slight angle**.
- **Creation of Moiré Materials:** Moiré materials are created by **stacking two layers of a two-dimensional (2-D) material**, such as [tungsten diselenide](#), and **twisting one layer** at a small angle (3.65°).
 - The **twist** between the layers creates a **unique moire pattern** that gives rise to **new electronic behaviors** not present in individual layers.
- **Electronic Properties:** The twist in layers creates **flat bands** in the electronic structure, where **electrons** move slowly with nearly **constant energy**.
 - This slow movement boosts **electron-electron interactions**, crucial for superconductivity.
- **Research on Tungsten Diselenide (tWSe₂):** tWSe₂, a semiconductor moiré material, demonstrated **superconductivity** at a transition temperature of approximately **-272.93° C**, comparable to that of **high-temperature superconductors**.
 - The superconducting state in tWSe₂ was found to be **more stable** than in other moiré materials.
- **Comparison with Graphene Superconductors:** Graphene-based moiré materials achieve superconductivity through **electron-lattice interactions** and **flat band formation**, while tWSe₂ relies on **electron-electron interactions**, making it more stable and potentially more robust.
 - Electron-lattice interactions are the interactions between **electrons and the atomic lattice** (the arrangement of atoms) in a material's crystal structure.
- **Significance of Findings: Stable superconductivity** at low temperatures enables practical applications in [quantum computing and electronics](#).
 - It can aid in **designing new materials** for future technologies.

Note: Superconductivity is the property of certain materials to conduct **direct current (DC) electricity without energy loss** when they are **cooled below a critical temperature (T_c)**.

- These materials also **expel magnetic fields** as they transition to the superconducting state.
- Superconductivity was discovered in **1911 by Heike Kamerlingh-Onnes**. For this discovery, he won the **1913 Nobel Prize in Physics**.
- E.g., **MRI machines** use an alloy of **niobium and titanium**.

Read more: [Allotropes of Carbon](#)

UPSC Civil Services Examination Previous Year Question (PYQ)

Prelims

Q. Which one of the following is the context in which the term "qubit" is mentioned?

(a) Cloud Services

(b) Quantum Computing

(c) Visible Light Communication Technologies

(d) Wireless Communication Technologies

Ans: (b)

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