Why Do Mosquitoes Prefer Certain People?

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Why in News?

Recent scientific research has made progress in identifying the chemical cocktail and sensory cues that make specific individuals more attractive to mosquitoes.

Understanding these drivers is critical for controlling the spread of vector-borne diseases like Malaria, Dengue, and Zika.

Mechanism of Attraction - Mosquitoes do not choose their targets randomly. Only female mosquitoes bite, as they require the protein in blood to produce eggs. They rely on three primary sensory signals:

- **Carbon Dioxide (CO2) -** Exhaled by humans; it acts as a long-range attractant.
- **Heat -** Body temperature helps the mosquito pinpoint the target once they are close.
- **Odour (Chemical Cues) -** This is the most complex factor, determined by the "soup of molecules" on the skin.

The Role of Skin Microbiota

- **Microbial Breakdown -** Attraction is largely driven by odorous compounds produced when the skin's microbiota (bacteria) breaks down skin oils.
- **Sebum Breakdown -** A study using *Aedes aegypti* mosquitoes identified that individuals most attractive to mosquitoes produced specific compounds resulting from the breakdown of sebum (an oily secretion from sebaceous glands).
- **Debunking Blood Type Myths -** Experts state there is no scientific basis for the common belief that mosquitoes prefer specific blood types (e.g., Type O).

Dietary Factors: The Beer Connection

Research in the Netherlands involving *Anopheles* mosquitoes (the primary vector for Malaria) found a significant correlation between alcohol consumption and mosquito attraction:

- **Increased Attractiveness -** Volunteers who had consumed beer within 24 hours were 1.35 times more attractive to mosquitoes.
- **Reasons -** Beer consumption increases body temperature, raises the volume of exhaled CO_2, and alters skin odour through sweat.

Mosquito Genus	Major Diseases Spread
Aedes	Dengue, Chikungunya, Zika, Yellow Fever
Anopheles	Malaria
Culex	Japanese Encephalitis, Lymphatic Filariasis

Reference: The Hindu | IAS Parliament

