

IIT Bombay develops painless shockwave-based needle-free syringe

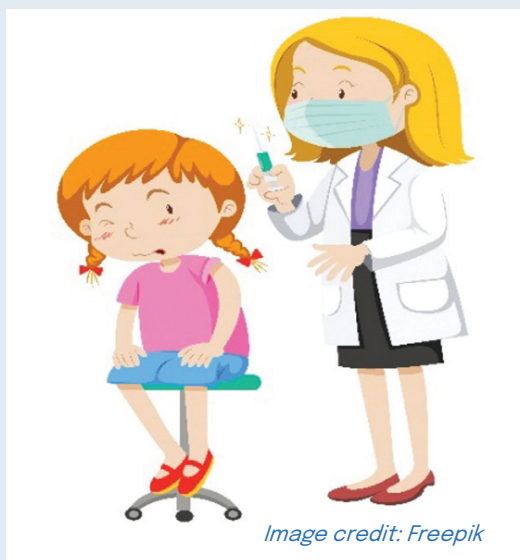


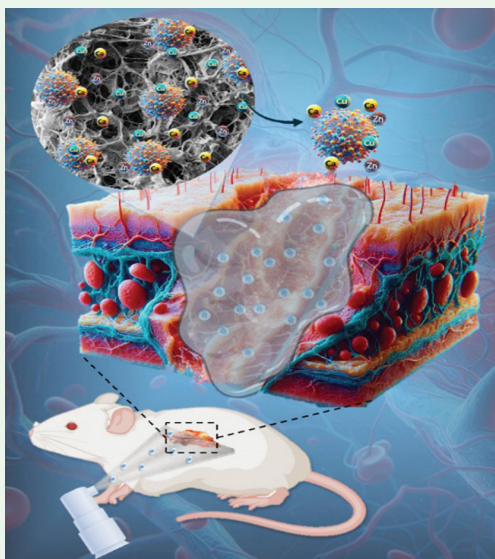
Image credit: Freepik

TO get rid of the pain and fear of needle-syringe, researchers from IIT Bombay have developed a shockwave-based needle-free syringe. The newly developed syringe pierces the skin with the help of high-energy pressure waves (shock waves). This high pressure in this syringe is developed by the inbuilt microjet.

The opening of the nozzle is about the width of human hair i.e. $125\ \mu\text{m}$ which makes the whole process smooth and pain-free. Moreover, this syringe causes less damage to the skin and prevents infection and blood-borne diseases caused by needle-stick injuries. According to researchers, the shock syringes could deliver multiple shots of a drug, therefore, making it cost-effective also. The study was published in the *Biomedical Materials & Devices*.

Source: IIT Bombay News

Researchers develop a sprayable hydrogel to improve wound healing



THE process of wound healing is time-consuming and ignoring, or not taking care of it properly could further lead to infection. Therefore, to address this problem researchers from IIT Delhi developed a hydrogel to improve wound healing. In the preclinical trials, this hydrogel heals the wound within 6 days in comparison to 12 days by other products available currently.

According to researchers — like a human body that releases important metal ions namely calcium, copper, and zinc in a certain order at injury sites, this skilfully engineered biocompatible sprayable hydrogel fills the wound and releases these multi-ions from medical grade Polylactic Acid (PLA) based micro-carriers in sync with the body's natural process, effectively enhancing the healing process. The research was published in *Advanced Healthcare Materials*.

Source: IIT Delhi News

Wearable devices can detect and predict inflammatory bowel disease flare-ups



WEARABLE devices can identify, differentiate, and predict flare-ups, or the worsening of symptoms and inflammation, in Inflammatory Bowel Disease (IBD), Mount Sinai researchers have shown in a first-of-its-kind study. The findings, published in the journal *Gastroenterology*, suggest that wearable technology can predict the subsequent development of flares in IBD, enabling continuous disease monitoring through widely available commercial devices.

Source: Mount Sinai Press Release

Researchers develop recyclable and fully ocean-degradable plastic



Photo by Muyang Lin

RESEARCHERS from the University of California San Diego have developed a wearable ultrasound device which could continuously monitor the muscle for the long term. The wireless monitoring device is powered by a battery and could easily be stuck to the body. The device addresses the limitations of currently available technologies by providing high-resolution tracking of muscle function. According to researchers the technology developed by them opens new possibilities in healthcare like prosthetics, gaming and other human-machine interface applications. The work was published in *Nature Electronic*.

Source: University of California San Diego News Release