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## Innovations in Transdermal Drug Delivery System- A Review

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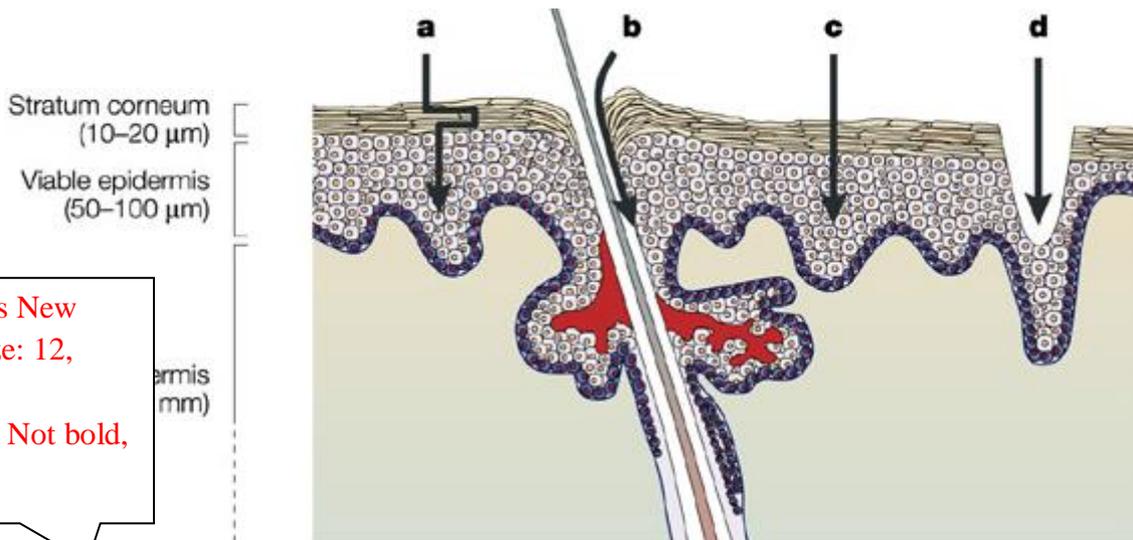


Figure 1: Schematic Representation of a Cross Section through Human Skin

### Innovation in Transdermal Technology

To achieve and to maintain a plasma drug level, the barrier properties of the skin must be overcome. The minimum therapeutic level, the barrier properties of the skin must be overcome. For an effective transdermal controlled delivery of drugs can be successfully accomplished. Modification of the conventional technology is increasingly being attempted for accomplishing the goal of reducing skin's barrier properties and enhancing transdermal permeation of drugs.

Advanced transdermal technologies include Microblades, Microneedles, Needleless syringe, Mechanical vibrations, Iontophoresis, Electroporation, abrasion, suction, stretching, ultrasound, magnetophoresis, radio frequency, lasers, photomechanical waves, and temperature manipulation.<sup>8</sup>

#### 1. Microblades

Earlier studies were aimed at designing a device for percutaneous drug delivery by overcoming the skin's natural barrier using microprojections.<sup>9</sup> The need for such a device existed because it was hypothesized that once a drug penetrated through stratum corneum with the aid of the apparatus, the remaining layers could proceed readily. The apparatus based on a plurality of microprotrusions having a height chosen with a length that is to be disrupted and a 'stop' for preventing the apparatus from penetrating beyond a predetermined distance.

### CONCLUSION

Transdermal drug delivery is hardly an old technology, and the technology is no longer limited to adhesive patches. In recent years, the transdermal route of drug delivery has evolved considerably and it now competes with oral route. Most of the device-induced transdermal drug delivery techniques are still in the early stages of commercialization. All device induced transdermal delivery techniques have a common concern regarding the safety of use, and skin reactions arising due to perturbing the stratum corneum – even though it is only temporary. However, combining electrical or mechanical device induced skin penetration methods with improved formulations is likely to produce the ideal transdermal drug delivery devices.

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