



The Technology Behind Drug Patches

A company called Pharma Patch plc in Toronto, Ont. is involved in the study and development of through the skin (transdermal) delivery of difficult-to-deliver drugs. The company was created in 1993 as the result of a merger of two Canadian companies, Medipro and Synorex.

The key transdermal drug delivery system is the "patch" in which medication is delivered through the skin for distribution in the body by the circulatory system. There are five core technologies at Pharma Patch plc: patch designs for use with liquid drug solutions; chemicals that enhance the ability of the skin to absorb the drug; patches that are designed to deliver creams; polymer systems that are designed primarily for wound care; evolving technologies for light-activated delivery of drugs.

Difficult-to-deliver drugs are usually ionic and polar with high molecular weights. This makes oral use of the drug ineffective. What actually happens with the "patch" is that the drug seeps out of the "patch" and sits against the skin. Continuous contact between drug and skin is maintained by the adhesive on the patch. The drug is usually combined with chemicals that allow for better skin penetration.

The drugs that are commonly found in "patches" today include the very well known nicotine "patch" that has helped many people stop smoking, heart medications, and hormones like estradiol and progesterone.

A main advantage of this type of drug delivery is that people do not have to remember to take their medications at certain times, for the drug is released from the "patch". All they have to remember is to put it on. Also the levels of the drug in the body are very even, compared with the fluctuations that can happen with oral dosage.

The chemicals that we call drugs are all different in how they act in your body and they all differ in their best route of entry. The "patch" is opening up many doors for drugs that may have once been ineffective just because it was not possible to continuously deliver them directly to the circulatory system.