

# Novel Approach of Painless Insulin Patches Via Transdermal Route for Type 1 Diabetes Patients Verses Painful Insulin Injection

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## ABSTRACT

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**Background:** Insulin is a painful injected Treatment which reduced the compliance of patients when taking several times per day. By new approach in form of patches the initiation of different route as a trans-dermal patch is an innovation by pharmaceutical researchers as well as industrial pharmacists, which will enhance the compliance with these fixed dosed painless insulin patches.

### Objective

- This study presents the painless Insulin Treatment.
- To provide Compliance to Type1 diabetic patients.
- To take painless insulin without requiring to put needles or cannulas into the body.

**Methods:** An insulin patch works by being placed on the skin and excipients within the patch help insulin to undergo the skin then into blood stream.

An insulin patch contains a combined dose of insulin that's absorbed over variety of hours. Different types of insulin patches are developed to release insulin more rapidly to counteract rises in blood glucose following meals (bolus insulin patches) and other insulin patches are developed to counteract the gradual release of glucose through the day by the liver (basal insulin patches).

**Results:** In this approach the method used 4 groups of diabetic male wistar rats fasted overnight were used for analysis results. After taking basal blood glucose concentrations, patches applied but before administration of an OGTT (Oral Glucose Tolerance Test) by using tail prick method blood glucose was measured at 30 minutes, 1, 2, 3, and 4 hours after glucose administration. After 4 hours rats were sacrificed and blood collected for plasma insulin assay using the rat ultra-sensitive insulin ELISA. In sorenson's buffer, patches were dissolved and measured the released insulin by ELISA. During OGTT at each point, the blood glucose concentration was significantly lower in the high insulin dose group than the low insulin dose groups, revealing that insulin was transported across skin and that a dose-dependent effect on blood glucose occurred.

**Conclusion:** It's revealed by dissolution studies that an insulin yield from patches of greater than 70 percent. Results of this study suggest that trans-dermal insulin delivery using pectin hydro-gel patches occurs in a rat model of type 1 diabetes mellitus.