

Meant for general public

Our goal with the TrueYou transdermal birth control patch is to minimize and to rid the market of the many issues that users face with current non-invasive contraceptive options on market today. Transdermal birth control patches have been found to cause irritated skin, come in a single exclusive skin tone, are easily lost to dirtying from basic daily tasks, and have been reported to cause blood clotting in some users with higher BMIs. Vaginal rings are inherently distrusted by many consumers first seeking non-invasive options and have increased risks of liver disease. Birth control pills are the industry standard, but with efficacy drop offs when not taken timely each day, it lacks benefitting many of the busy consumers within the market. When deciding on the delivery of contraceptives, users should not have to consider these side effects, complications, and overall confusion. This is where TrueYou comes in.

The final project concept of the TrueYou transdermal birth control patch is constructed of three specific layers. Each layer serves a different purpose in assisting the end user. The layers include: the patch backing (top layer) made of a dyeable, hemp fabric; the dissolving microneedle array and matrix (middle layer) with the contraceptive drug, and then a stability layer to protect the microneedles from any force applied to the packaging caused by shipping. These layers will be constructed then a layer of hypoallergenic adhesive will be applied to hold the patch to the user's skin for the recommended duration of six hours to dissolve.

The dissolving microneedle array and matrix will be loaded with birth control drugs in order to prevent pregnancy. However, the TrueYou patch will utilize the microneedle array in order to puncture through the epidermis and allow the drug to be more readily available. By puncturing the epidermis, the TrueYou patch removes the need to overload the patch with a high concentration of the drug. This will reduce the risk of blood clotting and liver disease. Another use of the dissolving microneedles is to decrease overall wear time. Once the patch has been applied to the skin, the microneedles will begin dissolving, which will allow the user to remove the patch after the needles have fully dissolved.

The last design consideration was directed towards the ability to apply and remove the TrueYou patch. The addition of a small 1 cm² circle to the corner of the patch was considered in order to give the user a piece of the patch that would be specifically used for application and removal without having to fear touching the microneedles. By adding this tab to the edge of the patch backing layer, the user would have an easily accessible part of the patch to assist them.

Following our experimental findings, the concept of dissolving microneedles to corner the birth control market as a cost effective and user friendly alternative to current on market competitors remains a point of great excitement.

Meant for grade school

Our goal with the TrueYou transdermal birth control patch is to minimize problems that other birth control options have. Patch birth controls have been found to cause irritated skin, come in only white, fall off when they get dirty, and occasionally cause blood clotting and liver disease. Birth control pills are the standard, but since the effectiveness drops when not taken at the same time every day, it lacks benefitting many of the busy users of birth control. When deciding on the delivery of the birth control, users should not have to consider these side effects, complications, and overall confusion. This is where TrueYou comes in.

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The dissolving microneedle array and matrix will be loaded with birth control drugs in order to prevent pregnancy. However, the TrueYou patch will utilize the microneedles to puncture through the skin and allow the drug to easily dissolve through the skin. By puncturing the skin, the TrueYou patch removes the need to overload the patch with a high concentration of the drug. This will reduce the risk of blood clotting and liver disease. Another use of the dissolving microneedles is to decrease overall wear time. Once the patch has been applied to the skin, the microneedles will begin dissolving, which will allow the user to remove the patch after the needles have fully dissolved.

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