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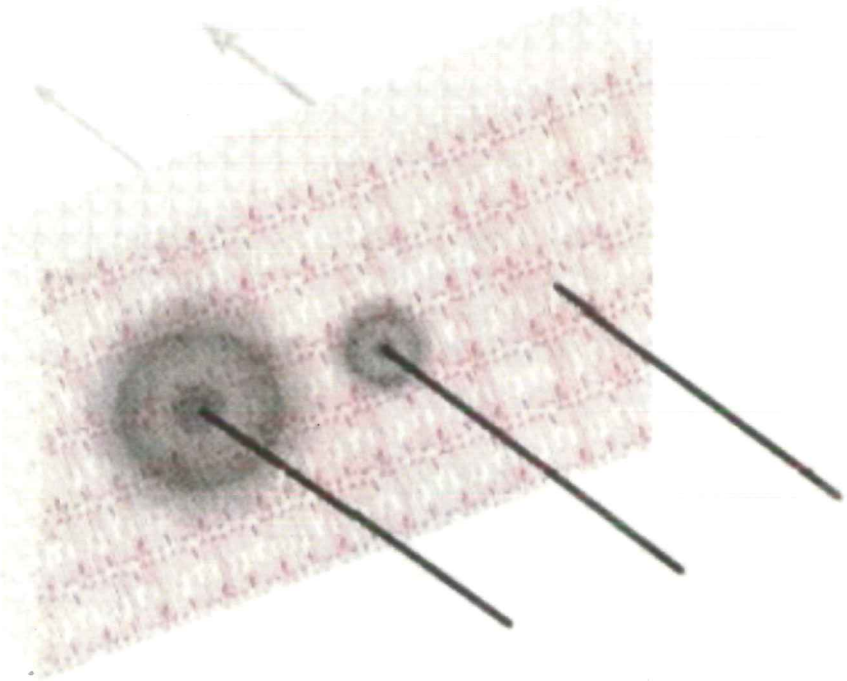

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STUDY OF DRUG PERMEATION THROUGH HUMAN SKIN: FRESH VS FROZEN SKIN

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The purpose of this study was to establish the best conditions for preparing human skin removed during abdominoplasty surgery for the study of drug permeation.

The human skin was dermatomed with a Wegener dermatome before it was installed in a flow through diffusion cell system (Franz cells). We compared drug permeation through human skin samples used immediately (less than 4h after removal) with samples that had been stored in a freezer at -10°C.

We found that frozen skin samples showed more permeation than fresh skin samples using the permeation flow-through Franz cell system. We examined the skin samples for histological feature. Defrosted and previoulsy frozen samples, showed signs of skin damage such as light spongiosis and keratinocyte apopotose.

Our next step is to assess a new apoptosis marker based on our histopathologic samples.

We concluded that frozen skin do not have the same permeation characteristics as fresh skin, and should be avoided if fresh skin is available in in vitro skin permeation testing.

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References:
1. Michaels AS, Chandrasekaran SK, Shaw JE: Drug permeation through human skin : Theory and in vitro experimental measurement. AIChE 21 :985, 1975
2. Chandrasekaran SK, Bayne W, Shaw JE : Pharmacokinetics of drug permeation through human skin. J Pharm Sci 67 :1370, 1978