

EVALUATION OF THE EFFECT OF THE PREMIUM HANDPIECE COMBINED WITH THE MESOJET TECHNOLOGY IN AN IN VITRO PERMEATION STUDY



THE PURPOSE

We have asked a company specialized in efficacy tests, UB-CARE - Spinoff of the University of Pavia (Italy) - to evaluate the ability to make a product penetrate into the dermis with the PREMIUM handpiece device using the MesoJet technology. The test has been performed in Department of Drug Science in the Drug Science Faculty – University of Milan, Via G. Colombo, 71 – 20133 Milano (Italia) with the "ex vivo" method of the Franz diffusion cells, using skin of animal origin (pig) obtained from the ear as a membrane.

THE RESULT

The result has been that delivering a liquid product for 30 seconds with the PREMIUM handpiece device through the MesoJet technology at a 5 millimeters distance from skin surface, the quantity of product that effectively penetrates into the dermis is 12 times higher than a topical application of the same amount of product (Table 1).

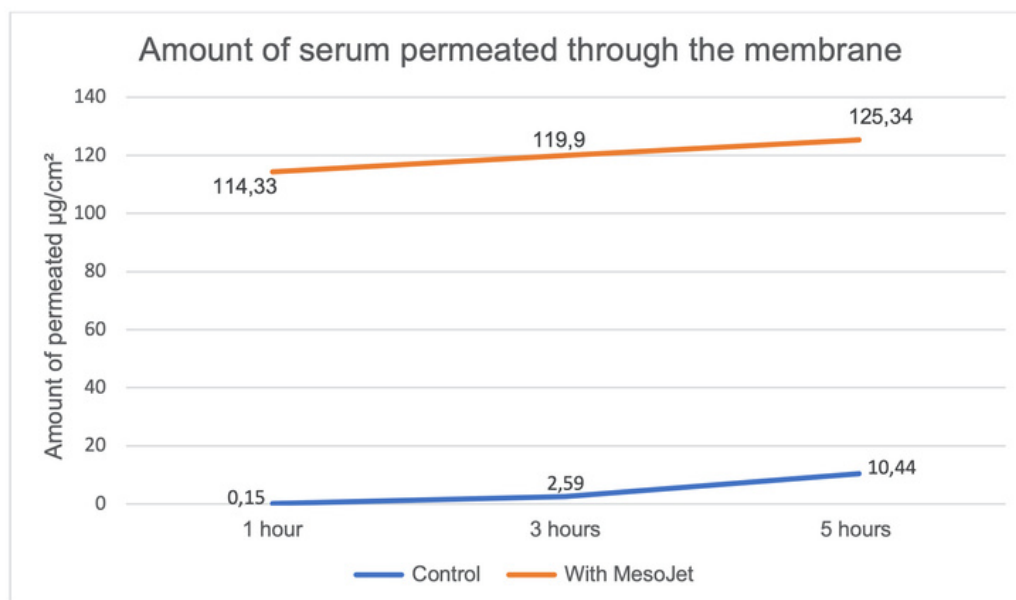


Table 1.: Amount of permeated solution ($\mu\text{g}/\text{cm}^2$) after the application with the PREMIUM handpiece Cod. MSJ-PH and with the control application.



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THE RESULT

We have also asked to verify the difference in terms of absorption keeping the PREMIUM handpiece at a distance of 10 millimeters from skin surface instead of at 5 millimeters. In that case there is still a higher penetration than with a topical application but delivering at a 5 millimeters distance triples the quantity of product permeated into the dermis.

THE METHOD

The use of the Franz diffusion cell method for the evaluation of percutaneous absorption of substances in order to predict their behavior in vivo is consolidated and supported by a large literature in cases where the stratum corneum is the main barrier that limits dermal and transdermal absorption. The test performance methods are reported in the "GUIDANCE DOCUMENT FOR THE CONDUCT OF SKIN ABSORPTION STUDIES, OECD SERIES ON TESTING AND ASSESSMENT, Number 28" (2, 3). As regards the choice of the diffusion membrane, pig skin is indicated in the literature as the most appropriate alternative to human skin for predicting absorption in vivo. The exposure time was set at 5 hours.



5 millimeters from skin surface targets the optimal penetration



skin of animal origin (pig) obtained from ear as a membrane

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