The Impact of Emollient, Humectant, and Occlusive Formulations on Stratum Corneum Hydration

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Dry skin is an issue that affects millions of individuals, yet moisturizers have varying degrees of effectiveness due to the many different formulas. Most common ingredients in dry skin specific moisturizers are humectants, emollients, and occlusives. Due to those being the most common ingredients, this study evaluated how different moisturizer formulations affect hydration by comparing a glycerin-dominate, oil-based, and occlusive product on a gelatin skin model. The three moisturizers tested were a glycerin-based lotion, a 100% petroleum jelly product, and an oil-based cream with glycerin listed lower in the ingredient list. Control of no moisturizer was included. The samples were observed over a 14-week period and hydration levels were passed through changes in the height and weight. Hydration levels were measured using a ruler and food scale at set intervals. Data were analyzed using a t-test, standard deviation, mean, and graphs. It was hypothesized that the formula that contained a pure occlusive agent would be the best to retain moisture in a gelatin model. This hypothesis was not supported as the oil-based lotion showed the greatest mean weight increase (36.4 g) and height change (0.54 cm), followed by the oil-based moisturizer, and petroleum jelly. The control showed no measurable change. These findings suggest that oil-based formulations may provide for more sustained hydration under tested conditions.

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