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Assessing the utility of Fontana-Masson and MART-1 stains in evaluating skin pigmentary changes induced by ultraviolet radiation and visible light

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One of the observed effects of ultraviolet radiation (UVR) and visible light (VL) on melanocompetent skin is increased pigmentation, also known as skin darkening or tanning. Many methods are used to measure skin pigment, including the Fontana-Masson stain (FMS) and MART-1 immunostain, which histologically highlight melanin and melanocyte density, respectively. While these approaches may be adequate in assessing baseline skin pigment among individuals of different races and phototypes, detecting the skin darkening induced by UVR and VL within the same individual is a challenge, especially in darker skin phototypes. We conducted a literature search and analyzed 16 articles comparing skin pigmentation changes induced by VL and UVR to their corresponding FMS and MART-1 results. Notably, significant skin darkening could be detected by diffuse reflectance spectroscopy after irradiation in skin phototypes III-VI, but FMS and MART-1 were unable to significantly differentiate these changes and reliably enumerate them within the same studies. Outcome measurements of FMS and MART-1 may be affected by several factors across studies, such as varying spectrums of radiation, radiation doses, skin phototypes, and subjectivity of the rater. Our results indicate that objective instrumental assessments, such as spectroscopy, are likely superior to FMS and MART-1 for measuring skin pigmentary changes induced by UVR and VL. Further research is recommended to investigate the value in performing FMS and MART-1 stains in future studies evaluating skin tanning from UVR and VL.

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31037

Assessment of actives and formula on antipigmentation efficacy

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Hyperpigmentation is a skin condition resulting from overproduction of melanin, the pigment produced by melanocytes. Melanocytes reside at the basal layer of the epidermis, producing melanin and transferring it to surrounding keratinocytes to protect the skin from UV damage. As we get older, irregularities develop, such as dark spots and uneven skin tone. Simple topical treatments against melanin overproduction are not always effective, due to skin irritability of potent ingredients or lack of penetration into the skin. A two-step approach was designed to screen for efficacious antipigmentation actives and validate performance in a finished formulation. First, potentially effective ingredients were screened for cytotoxicity and melanin synthesis inhibition using darkly pigmented normal human melanocytes. One of the efficacious ingredients identified without causing melanocyte cytotoxicity is bisabolol. Next, bisabolol is formulated into formulas with additional beneficial ingredients, and assessed on a 3D skin model for antipigmentation efficacy as well as skin irritability. MelanoDerm model was used to evaluate two different finished formulations that include bisabolol. MelanoDerm was treated with 2 final formulas as well as 2 placebo control formulas, which lacked bisabolol. The positive control was 2% kojic acid. The efficacy was assessed after 2 weeks of treatments. Compared with placebo controls, formula with bisabolol inhibited melanin synthesis. Additionally, collected media was used to evaluate skin irritation potential by assessing IL-1a release by ELISA. Final formulas had minimal impact on IL-1a release. Utilizing both monolayer melanocytes and MelanoDerm, efficacious anti-pigmentation products were validated without concerns on skin irritation.

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32900

Assessment of a new transformative texture massage product in a pediatric population: Effect on child, parent and child-parent interaction

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Introduction: The aim of this work was to evaluate the effects of massage in a pediatric population using a new transformative texture product: study on the child, the parent and the parent-child interactions.

Materials and methods: 75 children aged were recruited aged from 7 days to 24 months in a mono-centric open-label study. Massage has been performed daily by parents during 21 days with a new massage balm, with assessments at D0, D7, and D21 using clinical scoring and questionnaires related to the product, the child well-being and sleep, the parent-child interaction and the mood and stress of the parent. Video recording of the parent face has been performed during the first massage and analyzed using an artificial intelligence algorithm based on deep learning.

Results: Tolerance of the massage product was very good. Improvement of redness, dryness, roughness and suppleness were observed after the first application and after 21 days. The transformative texture of the product was considered as a sensorial texture. Effect on the child well-being has been positively perceived at D0 and D21. Improvement of the time for getting asleep has been observed. Parents perceived an improvement of the interaction, the complicity and the emotional bonds with their child and on their mood and stress. Joy emotion was identified during 35.3 $\pm$ 21.6% of the massage time and Disgust emotion during only 4.8 $\pm$ 5.4% by the video.

Conclusion: This study demonstrated that a "real-life" massage has positive effects on the child well-being, the parent mind and the parent-child interaction.

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32655

Assessment of literacy inclusivity of dermatologic patient education material at UMass dermatology and beyond

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Inequalities in society are emphasized, consciously or not, by the current health care system. They can be based off race, income, and education level. The needs of marginalized communities should be examined, and systems corrected accordingly, to provide more equality in care. Patient education materials are an opportunity to bridge the gap in patient care. However, these materials are often not inclusive to the public. With 82.7% of people reporting to use the internet as a medical resource and the NIH recommending a literacy level between 3rd and 7th grade, it is critical to examine these websites. The National Center for Education Statistics reports that 77% of Black people and 68% of Hispanic people have a Level 2 or less literacy level compared with 43% in White people. The reading level of multiple websites with information on dermatologic conditions were evaluated using the Readable Software. The reading grade level was reported using the Flesch-Kincaid and Gunning Fog literacy tests and then averaged. The average reading level of online resources was grade 9.89 with a standard deviation of 2.45. The average reading level was calculated for each condition and compared with the prevalence showing a weakly negative correlation with a Pearson correlation coefficient of -0.34. UMass Dermatology materials patient materials were also assessed, which averaged grade 8.98 initially and grade 7.42 after updating for language. Future efforts will be focus on making patient materials more readable and accessible at our study site and beyond by reaching out to these websites.

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