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### A new multimodal age prediction image analysis method from hands images of different age groups by neural network model



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Several papers on age prediction using face images have been published while very limited studies on hands aging have been conducted. Hands aging has a great impact on perceived age and is becoming increasingly important to physicians and their patients. To fill this gap, a novel age prediction method based on the hand images is developed. Age prediction models based on face images are well investigated mostly because of the persistence of massive datasets like IMDB-WIKI containing more than 500,000 face images. We captured face and hands images of 994 Indian women with age ranging from 20 to 60 years with different skin tones by VISIA CR. We developed two deep neural network architectures for the face and back of the hands, that can be used separately or in conjunction for age prediction. A novel neural network architecture works on hand images and predicts age based on the seven specified areas of the hand image such as central and bottom part of the backhand, knuckles areas of fingers. Predictions for all these seven areas are aggregated for the final age determination. This method based only on hands images showed a great association between actual age and predicted age with mean average error (MAE) of 5.89 years. We got MAE of 6.8 years for face-based age predictor. Our research can help to measure the complex effects of anti-aging products or any dermatologic procedures after treating aging hands objectively and as part of a multimodal age predictor.

*Commercial disclosure: 100% sponsored by HautAI.*

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### Changes in the demographic and economic burden of dermatologic disease



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Limited data are available on the burden of dermatologic disease, particularly surrounding disease distribution and providers of care. Further research is needed to facilitate health care planning and medical curricula development. A retrospective population-based analysis was performed on all physicians licensed to practice in Ontario from April 1, 2000, to March 31, 2017, who saw patients for dermatologic conditions. Data came from Ontario Health Insurance Plan claims records accessed through IntelliHealth. Dermatologic claims made up 3.6% of all claims submitted, with a 20% increase seen in the number of claims submitted for dermatologic disease over time. The majority of dermatologic patients were female and the average age of patients increased with time. Family physicians submitted the most claims for dermatologic conditions, ranging from 56%-62% of claims, compared with 24%-29% submitted by dermatologists. However, dermatologists submitted more dermatologic claims per physician. Paediatricians and internists submitted 3%-4% and 1%, respectively, of all dermatologic claims. Dermatologic conditions most frequently presenting to nondermatologists were different from those presenting to dermatologists. Dermatologic disease was more prevalent in urban compared with rural areas, with family physicians accounting for a greater percentage of claims in rural compared with urban areas. The cost of dermatologic claims increased by 32% across 17 years, with the average cost per claim increasing by 14%. However, the cost of dermatologic claims as a percentage of all claims during the study period decreased by 0.6%. Dermatologic disease burden is changing over time, with potential important implications for health care planning and patient care.

*Commercial disclosure: None identified.*

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### Effects of ultrafrequency on abdominal adiposity



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**Background:** The mechanism of fat reduction from radiofrequency occurs by the thermal stimulation of adipocyte metabolism, causing a lipase-mediated triglyceride enzyme degradation, apoptosis, and adipocyte rupture. The ultracavitation (high power ultrasound) promotes fat reduction using adipose cell destruction through mechanical stimulus. The literature on the combination of these two physical agents, named ultrafrequency, is still scarce, requiring consistent analysis of the effects of this therapy combination.

**Objective:** The objective of this study was to investigate the effects of radiofrequency associated with ultracavitation in the treatment of abdominal subcutaneous tissue of women.

**Methods:** This was a prospective randomized clinical trial in which 45 participants were divided into 3 distinct groups: Control Group (no treatment); Ultracavitation; and Ultrasound associated with Radiofrequency (Ultrafrequency), each group with 15 volunteers. The following variables were evaluated: weight, perimeter, plicometry, ultrasonography and validate questionnaires about treatment reactions, and patient satisfaction.

**Results:** The authors observed that in the group that received the application of Ultrasound associated with Radiofrequency presented a more significant adipose tissue decrease, which was verified through all the evaluation methods.

**Conclusions:** The authors concluded that the simultaneous application of ultracavitation and radiofrequency generated a reduction in localized adiposity superior to the isolated use of ultracavitation. Through the questionnaires decreasing skin flaccidity was observed and no major adverse reactions were detected.

*Commercial disclosure: None identified.*

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### Allergenic potential, marketing claims and pricing of facial moisturizers



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**Introduction:** Ingredients in facial moisturizers can impact the management of sensitive skin syndrome, a constellation of unpleasant neurocutaneous symptoms triggered by innocuous environmental stimuli. This study evaluates the allergenic potential, consumer rating, and pricing of the top 100 best-selling facial moisturizers that claim to be natural, fragrance free, expert approved, age preventing, beneficial for sensitive skin, and have sun protection factor (SPF).

**Methods:** In October 2018, a list of 100 top-selling products from Walmart, Target, and Amazon was compiled. Ingredients, average price, average customer rating, and product claims were recorded. Ingredients were compared with known allergens in the American Contact Dermatitis Society's Contact Allergen Management Program (ACDS-CAMP) using an automated search algorithm. Linear regression models evaluated the statistical significance ( $P < .05$ ) of product claims and the number of allergens.

**Results:** Products with anti-aging claims had the highest average price (\$14.99/oz) and expert-approved had the lowest (\$5.91/oz). "Fragrance-free" agents had the highest average customer rating (4.35/5.00), and "natural" (3.49/5.00) had the lowest. Products with SPF claims had the highest average allergen number (6.88/product), and expert-approved ones had the lowest (3.86/product). The most prevalent allergens were ethylenediamine tetraacetic acid (EDTA), phenoxethanol, and cetyl alcohol. "Expert-approved" products had significantly fewer allergens ( $t = -2.17, P = .033$ ), while "SPF" products had significantly more allergens ( $t = 4.19, P < .001$ ).

**Conclusions:** Marketing claims play an important role in product sales and consumer rating. Physicians should balance allergenic risk with affordability and consumer preferences when recommending products.

*Commercial disclosure: None identified.*