



State of Skincare

2021 Annual Review

Foreward

We're excited to publish our 2021 State of Skincare Report. This publication builds upon our 2020 report, covering the newest advancements in skincare research, products, policy, and diagnostics, as 2021 continued to be an exciting year across all of these categories.

2021 proved to be a groundbreaking year of research and skin healthcare advancements.

In this report, we discuss the rising rates of Melanoma, which is likely to be the most common cancer among men by 2040, mass media coverage on skin health, prevention, and diagnostics.

This past year, we also witnessed national recalls of popular sunscreens due to exposure to the carcinogen, Benzene in parallel with the FDA tightening sunscreen regulations to protect consumers.

Alongside policy changes, we saw more movement, acquisitions, and growth for up-and-coming and established brands. The Honest Company, backed by Jessica Alba, released its IPO in 2021, reaching a valuation of \$1.44 billion while Hims and Hers acquired Honest Health and Apostrophe, and Function of Beauty acquired Atolla.

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Emerging Technology - Artificial Intelligence

New and enhanced detection capabilities are paving the way for digital apps and telehealth capabilities. These technologies aim to make screenings more accessible and aid clinicians in diagnostics. From Google's new skin AI app - Derm Assist - to recent studies conducted in Hawaii, the use of AI in dermatology practices will be the industry standard moving forward when triaging skin health conditions, including skin cancer, rashes and more.

"Current and future healthcare systems are not generally prepared to cope with the demand for dermatological services (if based on human-driven examinations alone)."

Dr. Luis Sounskin

As early as 2010, companies such as Deepmind and Skinvision began working on AI applications in dermatology. However, in this past year alone, we saw the impacts of new models from Google, MIT and research trials from Hawaii highlighting the newest potential for AI; specifically, diagnosing and screening for skin cancer. Malignant melanoma is one of the most fatal forms of skin cancer; accounting for 70% of skin cancer-related deaths worldwide. Today, senior dermatologists may still not catch subtle melanoma, as it can appear similar to benign or 'harmless' moles. New research from MIT highlights a nearly 90% sensitivity success rate with their models towards identifying which suspicious pigmented lesions are dangerous.



A Hawaiian research study suggested that the best method in the near future is to combine AI with dermatologist's review. When working in tandem, they found that the dermatologists were able to identify melanoma vs. non-melanoma skin cancer 100% of the time within clinical trials.

While most dermatologists might not rely on AI detection today, digital apps such as Derm Assist, SkinVision, MiiSkin and Skintelligent have begun to leverage AI for skin health detection via smartphone apps in the hopes of better triaging skin concerns and ultimately lowering the overwhelming demand placed on dermatologists today.

“The actual limitation now is access to high-quality / high-quantity datasets (in AI) rather than other technical components, which were much more of an issue not too long ago.”

Dr. Luis Sounskin

Benzene Recall

In 2021, the carcinogen Benzene made headlines, after traces were found in big-name-brand products leading to voluntary recalls.

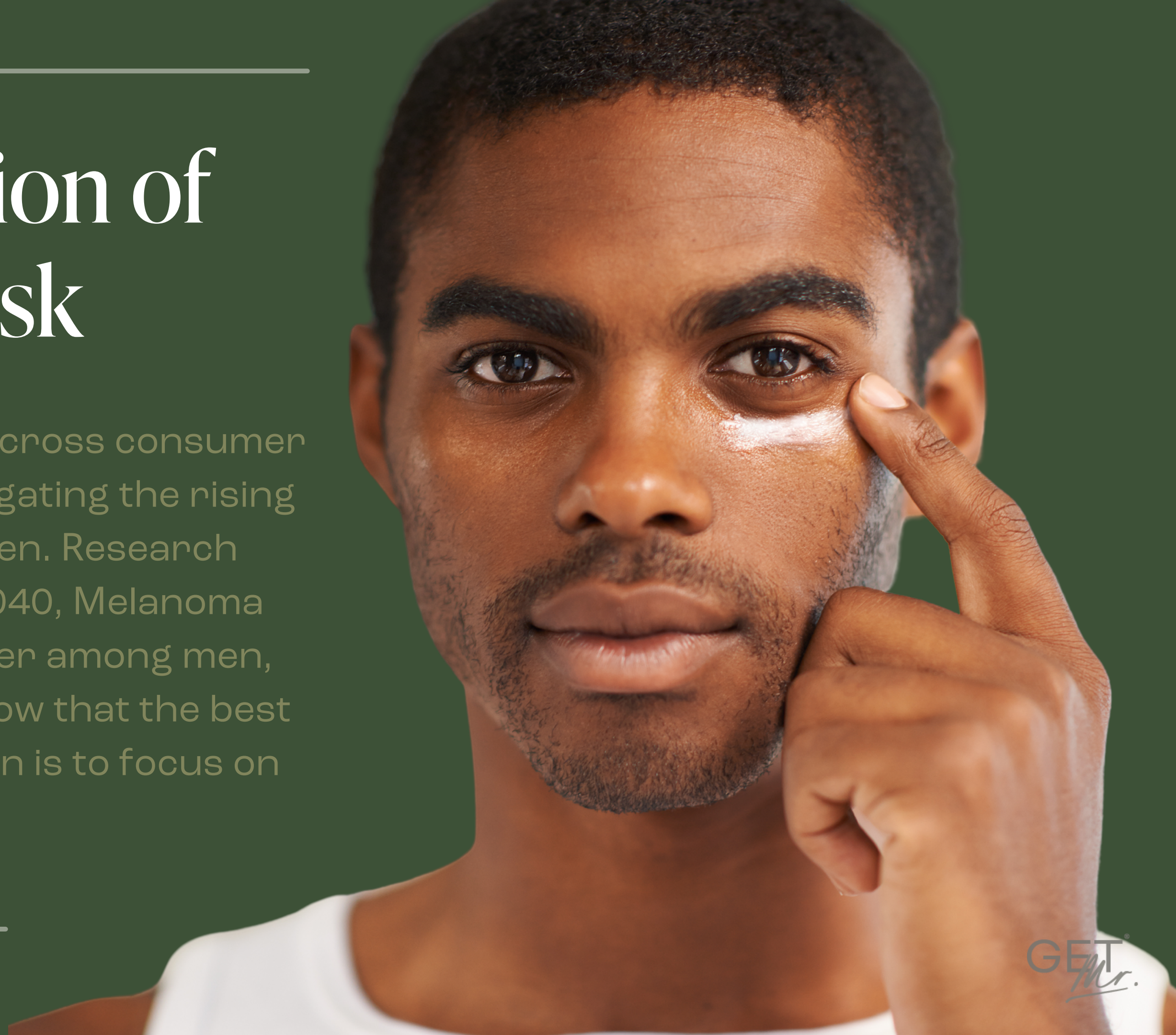


Aveeno, Neutrogena (Johnson and Johnson), and Coppertone (Beiersdorf) products were recalled after Valisure discovered certain sunscreens had been contaminated with benzene, a compound that has been shown to have carcinogenic long-term effects. While this recall may cause initial distrust in the safety of many commonly used sunscreen products, it should not, after reviewing the case study. The batch tested contained over 200 samples of products, and the vast majority of these products did not contain benzene. As the lot tested was overwhelmingly benzene-free, it's clear this issue lies within the manufacturing process. While benzene may be used at minimal levels to help with ease of spreadability (in aerosols, hand sanitizer), benzene is not an ingredient that is not inherently required in the making of any sun protectant products.



Men's Perception of Skin Cancer Risk

A growing body of literature across consumer and medical journals is investigating the rising rates of skin cancer among men. Research from 2018 suggests that by 2040, Melanoma will be the most common cancer among men, and peer-reviewed studies show that the best chance of limiting this condition is to focus on changing behaviors.



In 2021, a research study investigated the relationship between men's perceptions of their risk of contracting skin cancer, how often they were exposed to the sun, and how compliant they were with sun protection. The study found that men with elevated risk of skin cancer rarely used sun avoidance behaviors, such as wearing protective hats/clothing, and sunscreen. Ultimately, men in the study were not aware of their personal risks as it related to sun exposure, including whether they had a family history of skin cancer, impact of their skin type and sun protective behaviors. Non-melanoma skin cancers are the most common form of cancer in the world and disproportionately affect men at higher rates. Given that by 2040 melanoma may be the most common form of cancer in men, this research is part of a growing body of literature investigating how we can best curb this epidemic by increasing men's awareness of their risk and by educating our population about sun protective behaviors.

“Many men aren't engaging in the protective behaviors that we know work, and so it's important to investigate how we can rectify this in the future.”

Gabrielle Adams

"Many people believe skin cancer is a disease seen primarily in older people. However, melanoma skin cancer cases are increasing in men ages 15-39. Young men also make up nearly two thirds of all melanoma related deaths. This may be because young men are less likely to get their skin checked by dermatologists allowing these lesions to go unnoticed until they are bothersome or noticed by someone else. By this point, the cancer can spread to other parts of the body and it may be too late. It is important that we change how we think about skin cancer as a disease primarily in older people and encourage young men to get their skin checked. Fortunately, there are newer less invasive treatments that avoid making drastic cuts in people to remove skin cancer."

Dr. Orit Markowitz

In addition, consumer-oriented publications, such as Men's Health and Harper's Bazaar, have highlighted the growing concern of skin cancer in men and have urged its readers to increase sun protection, be informed about family history risks, and perform self-skin exams. Even with these actions, more research using robust clinical trials to determine the most effective interventions are needed.

Men's Health

BAZAAR^{Harper's}

Authors & Contributors

Authors

Dr. Beth Goldstein is a board-certified dermatologist for over 30 years, specializing in the treatment of skin cancer surgery.

Elianna Goldstein is the co-founder and CEO of MR, with experience in corporate venture capital, marketing, business development for Fortune 500 companies.

Guido Baler recently graduated from the UNC-Chapel Hill where he majored in Neuroscience. Guido is pursuing a career in medicine and currently working in the field of dermatology.

Kasey Norton is a Clinical Team Manager at Central Dermatology Center in NC. She is passionate about rural medicine in the Carolinas.

Contributors

Gabrielle Adams

Dr. Orit Markowitz

Dr. Louis Sounskin

Kyndall Vaughan

Links to learn more:

Techniology

- <https://pubmed.ncbi.nlm.nih.gov/34744150/>
- <https://www.sciencedirect.com/science/article/pii/S0959804919303491>
- <https://www.nature.com/articles/s41598-021-96707-8>
- <https://news.mit.edu/2021/artificial-intelligence-tool-can-help-detect-melanoma-0402>
- <https://www.science.org/doi/10.1126/scitranslmed.abb3652>
- <https://pubmed.ncbi.nlm.nih.gov/34744150/>

Benzene

- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6793782/#R7>
- <https://www.consumerreports.org/recalls/aveeno-and-neutrogena-spray-sunscreens-recalled-due-to-low-l-a1023552958/>
- <https://www.fda.gov/drugs/news-events-human-drugs/update-sunscreen-requirements-deemed-final-order-and-proposed-order>
- <https://getmr.com/a/blog/benzene>

Men and skin cancer

- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8508125/#B9-ijerph-18-09989>
- <https://www.menshealth.com/health/a35927240/melanoma-skin-cancer-rise-millennials/>
- <https://www.harpersbazaar.com/beauty/skin-care/a37709102/sunscreen-for-men-preventing-skin-cancer/>
- <https://wwd.com/beauty-industry-news/skin-care/how-grooming-is-introducing-men-to-self-care-and-redefining-masculinity-1203373643/>

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