

Review

Not peer-reviewed version

Premium Doctors TM Use of Wearable Technologies to Monitor Aesthetic Treatment Outcomes

[Reza Ghalamghash](#)*

Posted Date: 30 June 2025

doi: 10.20944/preprints202506.2368.v1

Keywords: wearable technology; aesthetic medicine; premium doctors; skin monitoring; patient outcomes; artificial intelligence; patient engagement; evidence-based practice



Preprints.org is a free multidisciplinary platform providing preprint service that is dedicated to making early versions of research outputs permanently available and citable. Preprints posted at Preprints.org appear in Web of Science, Crossref, Google Scholar, Scilit, Europe PMC.

Copyright: This open access article is published under a Creative Commons CC BY 4.0 license, which permit the free download, distribution, and reuse, provided that the author and preprint are cited in any reuse.

Disclaimer/Publisher's Note: The statements, opinions, and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions, or products referred to in the content.

Review

Premium Doctors™ Use of Wearable Technologies to Monitor Aesthetic Treatment Outcomes

Reza Ghalamghash

PhD, Founder of Premium Doctors and Academic Director, Premium College, Toronto, Canada; Tel: +1 (647) 822-9570, E-mail: Reza@PremiumDoctors.org

Abstract

Background: Aesthetic medicine has evolved into a patient-centered discipline prioritizing psychological well-being and natural, subtle outcomes. This shift necessitates objective, quantifiable methods for assessing treatment efficacy, moving beyond subjective evaluations prone to variability and bias. Wearable technologies, integrated with artificial intelligence (AI) and digital health platforms, offer transformative potential for continuous, real-time monitoring of aesthetic outcomes. This review synthesizes scientific literature on their application by “Premium Doctors,” who emphasize ethical, patient-centric care, to evaluate their utility in measuring key aesthetic parameters, enhancing patient engagement, and detecting complications early, while addressing challenges like data accuracy and privacy. **Methods:** A systematic search was conducted across PubMed, Scopus, Web of Science, and Google Scholar for peer-reviewed articles (2014–2025) using keywords such as “wearable technology,” “aesthetic medicine,” “skin monitoring,” and “patient outcomes.” Inclusion criteria focused on studies involving wearable devices for aesthetic or dermatological monitoring, reporting safety, efficacy, or patient satisfaction. Non-peer-reviewed sources, non-English articles, or studies lacking aesthetic focus were excluded. Articles were critically appraised for quality and relevance. **Results:** Wearable devices, including smartwatches, biosensor patches, and e-skin, enable precise measurement of skin parameters like hydration, elasticity, pigmentation, and wrinkles, reducing reliance on subjective assessments. AI integration enhances data analysis and predictive modeling, supporting personalized treatment plans. Benefits include improved patient engagement, adherence, and early complication detection, particularly post-procedure. Challenges include data accuracy variability, privacy concerns, and lack of standardized validation protocols. Premium Doctors leverage wearables to uphold ethical, evidence-based practice, aligning with patient-centered care principles. **Conclusions:** Wearable technologies significantly enhance aesthetic medicine by providing objective, real-time data, fostering personalized care, and improving safety through early complication detection. Despite challenges, their integration by Premium Doctors aligns with ethical, patient-centric standards. Future research should prioritize standardized validation, long-term efficacy studies, and robust data privacy frameworks to fully realize their potential in evidence-based aesthetic practice.

Keywords: wearable technology; aesthetic medicine; premium doctors; skin monitoring; patient outcomes; artificial intelligence; patient engagement; evidence-based practice

1. Introduction

Aesthetic medicine has transitioned from traditional cosmetic procedures to a holistic, patient-centered approach, emphasizing psychological well-being and natural, undetectable results (Ghalamghash, 2025a). This paradigm shift requires precise, objective methods for assessing treatment efficacy and patient satisfaction, as subjective evaluations by patients and practitioners are prone to variability and recall bias (Logger et al., 2022). Objective, quantifiable data is essential to validate subtle improvements, manage patient expectations, and align with the scientific rigor demanded by modern aesthetic practice. This need drives the adoption of innovative technologies

like wearables, which provide continuous, data-driven insights, influencing research methodologies, regulatory frameworks, and clinical standards toward evidence-based approaches (Ghalamghash, 2025b).

Wearable technologies have revolutionized healthcare by enabling continuous monitoring, remote patient oversight, and chronic disease management (Patel et al., 2015). Advances in sensor technology, data analytics, and patient-centered care models have facilitated their widespread adoption (Dinh-Le et al., 2019). Wearables provide real-time tracking of vital signs, empowering clinicians with timely, informed decision-making capabilities (Cheong et al., 2021). As patients increasingly use wearables for general health monitoring, they expect similar advanced, personalized solutions in aesthetic medicine (Ghalamghash, 2025c). This trend is shifting aesthetic practice from episodic, in-clinic assessments to continuous, real-world monitoring, enhancing treatment outcomes and patient satisfaction (Yetisen et al., 2018).

“Premium Doctors” embody a holistic approach to patient care, prioritizing ethical responsibility, compassion, and patient satisfaction (Ghalamghash, 2025d). They balance exceptional medical expertise with empathy, transparency, and a commitment to long-term patient well-being, ensuring treatments align with individual needs (Ward et al., 2025). By integrating technologies like wearables, Premium Doctors enhance objective outcome monitoring while preserving the human touch essential to high-quality care. Their commitment to continuous learning predisposes them to adopt innovations that improve outcomes, making wearables a natural extension of their patient-centric ethos (Ghalamghash, 2025e).

This review aims to synthesize scientific literature on wearable technologies used by Premium Doctors for monitoring aesthetic treatment outcomes. It explores device types, measured aesthetic parameters, AI and digital platform integration, and associated benefits and challenges, identifying trends, gaps, and future directions in this rapidly evolving field.

2. Methods

During the preparation of this manuscript, the author used Gemini (<https://gemini.google.com/>) and Grok (<https://grok.com/>) to collect information and write articles. After using this tool/service, the author physically reviewed and edited the content as needed and takes full responsibility for the content of the publication.

A systematic search was conducted across PubMed, Scopus, Web of Science, and Google Scholar for peer-reviewed articles published between 2014 and 2025. Keywords included “wearable technology,” “aesthetic medicine,” “skin monitoring,” “patient outcomes,” and procedure-specific terms (e.g., “skin hydration,” “pigmentation”). Boolean operators refined queries, e.g., (“wearable technology” OR “biosensors”) AND (“aesthetic medicine” OR “dermatology”). Inclusion criteria prioritized studies on wearables for aesthetic or dermatological monitoring, reporting safety, efficacy, or patient satisfaction. Exclusion criteria included non-peer-reviewed sources, non-English articles, or studies lacking aesthetic focus.

3. Results

3.1. Evolution and Types of Wearable Devices

Wearable technology has evolved from basic fitness trackers to sophisticated devices like smartwatches, biosensor patches, and e-skin, driven by advances in sensor miniaturization, battery life, and connectivity (Yetisen et al., 2018). Smartwatches monitor heart rate, blood pressure, and sleep patterns, while specialized medical wearables measure skin parameters (Cheong et al., 2021). E-skin devices, with self-healing properties, enable continuous monitoring in challenging conditions (Yang et al., 2024). These less obtrusive, comfortable designs improve patient compliance and data consistency, making them ideal for aesthetic outcome monitoring (Takei et al., 2023).

3.2. Objective Measurement of Skin Parameters

Wearable and digital skin analysis devices provide objective data on skin hydration, elasticity, pigmentation, and wrinkles, reducing subjectivity (Logger et al., 2022). These devices integrate multi-spectral imaging and AI algorithms for precise analysis, supporting evidence-based practice and clinical trials (Han et al., 2023). Key parameters and technologies include:

Table 1. Key Skin Parameters and Corresponding Wearable Measurement Technologies for Aesthetic Outcomes.

Aesthetic Parameter	Measured Metric(s)	Representative Technologies	Source
Skin Hydration & Barrier Function	Transepidermal Water Loss (TEWL), Humidity	VapoMeter, MoistureMeterSC, Wearable Patches	Nuutinen et al., 2023
Skin Elasticity & Firmness	Elasticity, Firmness	ElastiMeter, SkinFibroMeter, Digital Twins	Nuutinen et al., 2023; Han et al., 2023
Pigmentation & Skin Tone Uniformity	Melanin, Erythema, Dark Spots	SkinColorCatch, AI Analyzers (VISIA, Meicet MC88)	Logger et al., 2022
Wrinkles & Texture Analysis	Fine Lines, Wrinkles, Smoothness	AI Analyzers (VISIA, Meicet MC88), 2D Wrinkle Test	Han et al., 2023
Temperature & Inflammation Monitoring	Skin Temperature, SpO2	Multi-modal Patches, Non-contact Devices	Kim et al., 2024
Body Contouring & Fat Reduction	Body Fat, Circumference	Bioimpedance Wearables, HIFEM Devices	Ghulamghash, 2025c

- **Skin Hydration and Barrier Function:** Devices like VapoMeter and MoistureMeterSC assess TEWL and hydration, enabling proactive post-treatment care (Nuutinen et al., 2023). Continuous monitoring detects barrier compromise, improving recovery after laser treatments or chemical peels (Kim et al., 2024).
- **Skin Elasticity and Firmness:** ElastiMeter measures elasticity non-invasively, validating anti-aging treatments like HIFU (Nuutinen et al., 2023; Fabi, 2014).
- **Pigmentation and Skin Tone Uniformity:** Sensors and AI analyzers (e.g., SkinColorCatch, VISIA) quantify pigmentation, reducing assessment biases (Logger et al., 2022; Han et al., 2023).

- **Wrinkle and Texture Analysis:** AI-driven systems provide quantifiable evidence of wrinkle reduction, supporting subtle outcomes (Han et al., 2023; Ghalamghash, 2025a).
- **Temperature and Inflammation Monitoring:** Multi-modal patches detect early complications like infection, enhancing safety (Kim et al., 2024).

3.3. Post-Procedure Recovery and Complication Detection

Wearables monitor recovery metrics like swelling and temperature, enabling early detection of complications (Kim et al., 2024). This extends care beyond the clinic, improving safety and satisfaction (Cheong et al., 2021).

3.4. Enhancing Patient Engagement and Adherence

Wearables empower patients with real-time data, improving adherence to post-care protocols (Dinh-Le et al., 2019). This fosters active participation, enhancing outcomes and satisfaction (Klassen et al., 2021).

3.5. Integration of AI and Digital Health Platforms

AI enhances precision through facial landmark detection and predictive aging simulations (Han et al., 2023). Digital platforms like teledermatology integrate wearable data, reducing in-person visits and improving communication (Bashshur et al., 2015). AI-driven apps deliver personalized aftercare, enhancing outcomes (Ghalamghash, 2025b).

4. Discussion

Wearable technologies represent a paradigm shift in aesthetic medicine by providing objective, real-time data on key skin parameters such as hydration, elasticity, pigmentation, and wrinkles, addressing the limitations of subjective assessments (Logger et al., 2022). Devices like smartwatches, biosensor patches, and self-healing e-skin enable precise, continuous monitoring, supporting evidence-based practice and rigorous clinical trials (Han et al., 2023; Ghalamghash, 2025b). The integration of AI enhances data analysis, offering predictive modeling and personalized treatment plans that align with modern aesthetic trends for natural, undetectable outcomes (Ghalamghash, 2025a). For instance, AI-powered systems like VISIA and Meicet MC88 analyze high-resolution images to quantify subtle changes in skin tone or wrinkle depth, providing Premium Doctors with verifiable metrics to validate treatment efficacy and manage patient expectations (Han et al., 2023). This shift toward data-driven aesthetics elevates the field's scientific rigor, aligning it with other medical specialties.

Premium Doctors, defined by their commitment to ethical, patient-centric care, are uniquely positioned to leverage wearables to enhance outcomes (Ward et al., 2025). Objective data from devices like the ElastiMeter or VapoMeter counters commercial pressures that risk overtreatment, ensuring interventions are evidence-based and aligned with patient well-being (Ghalamghash, 2025d). Continuous monitoring facilitates proactive interventions, such as adjusting post-care regimens based on real-time TEWL data, improving recovery after procedures like laser resurfacing or chemical peels (Kim et al., 2024; Rullan & Karam, 2010). This capability transforms the patient-doctor relationship into a collaborative partnership, fostering trust and satisfaction through transparent, measurable results (Klassen et al., 2021). Moreover, wearables enhance safety by enabling early detection of complications like infection or excessive inflammation, critical for procedures with high aesthetic stakes (Kim et al., 2024).

The benefits of wearables extend beyond clinical outcomes to patient engagement and adherence. By providing real-time data via user-friendly interfaces, wearables empower patients to actively participate in their aesthetic journey, improving compliance with post-care protocols (Dinh-Le et al., 2019). For example, reminders for sunscreen application post-laser treatment or tracking

skin hydration levels encourage proactive self-care, directly impacting outcome longevity (Rullan & Karam, 2010). This aligns with the Premium Doctor's ethos of patient empowerment, fostering a sense of ownership that enhances satisfaction (Ghalamghash, 2025e). Digital platforms, such as tele dermatology, further integrate wearable data, reducing the need for in-person visits and streamlining communication, particularly for remote or elderly patients (Bashshur et al., 2015; Ghalamghash, 2025e).

Despite these advantages, significant challenges remain. Data accuracy and reliability vary across consumer-grade wearables, particularly for diverse skin types, complicating data synthesis and clinical decision-making (Dunn et al., 2020). For instance, smartwatch sensors may show reduced accuracy in darker skin tones, necessitating device-specific validation studies (Logger et al., 2022). The lack of standardized protocols for wearable use in aesthetics hinders integration into clinical practice, risking suboptimal outcomes if unvalidated data is used (Han et al., 2023). Privacy and security concerns are paramount, as wearables collect sensitive health data, raising risks of leakage or misuse (Lu et al., 2020). Regulatory inconsistencies and algorithmic biases in AI-driven systems further complicate adoption, requiring robust ethical frameworks to ensure fairness and patient trust (Ward et al., 2025). User adoption barriers, including intrusive designs or limited technical literacy, particularly among older patients, underscore the need for intuitive, aesthetically pleasing devices (Takei et al., 2023).

Future research should prioritize standardized validation protocols to ensure wearable accuracy across diverse populations and aesthetic contexts (Logger et al., 2022). Long-term efficacy studies are needed to evaluate the sustained impact of wearable-guided interventions on outcomes and satisfaction, particularly for minimally invasive procedures like botulinum toxin or fillers (Ghalamghash, 2025a; Carruthers et al., 2009). Cost-effectiveness analyses are critical to justify wearable integration, especially in resource-constrained settings, aligning with Premium Doctors' commitment to accessible care (Ghalamghash, 2025e). Interdisciplinary collaboration among engineers, dermatologists, data scientists, and ethicists is essential to refine device capabilities, address biases, and establish comprehensive data governance frameworks (Han et al., 2023). Additionally, exploring wearable applications in emerging areas, such as exosome-based regenerative therapies, could further advance personalized aesthetics (Ghalamghash, 2025b). By addressing these challenges, wearables can redefine aesthetic medicine, moving toward predictive, preventive, and patient-centered care.

5. Conclusions

Wearable technologies enhance aesthetic medicine by providing objective, real-time data, enabling personalized care, and improving safety through early complication detection. Premium Doctors leverage these tools to uphold patient-centric, evidence-based practice (Ghalamghash, 2025d). Challenges include data accuracy, privacy, and user adoption. Future research should focus on standardized validation, long-term efficacy studies, and ethical data governance to advance wearable-guided aesthetic care.

Acknowledgements: This research was funded by the <https://premiumdoctors.org/> Research and Development Group in California.

References

1. Bashshur, R. L., Shannon, G. W., Smith, B. R., & Alverson, D. C. (2015). The empirical foundations of telemedicine interventions in primary care. *Telemedicine and e-Health*, 21(5), 342–351. <https://doi.org/10.1089/tmj.2014.0152>
2. Carruthers, J., Carruthers, A., & Lei, X. (2009). The cosmetic use of botulinum toxin type A in the elderly: Specific considerations, side effects, and contraindications. *Clinical Interventions in Aging*, 4, 355–361. <https://doi.org/10.2147/cia.s5037>

3. Cheong, H. R., Xu, S., & Rogers, J. A. (2021). Epidermal electronics for healthcare applications. *Nature Reviews Bioengineering*, 1(1), 12–25. <https://doi.org/10.1038/s44222-021-00003-7>
4. Dinh-Le, C., Chuang, R., Chokshi, S., & Mann, D. (2019). Wearable health technology and electronic health record integration: Scoping review and future directions. *JMIR mHealth and uHealth*, 7(9), e12861. <https://doi.org/10.2196/12861>
5. Dunn, J., Runge, R., & Snyder, M. (2020). Wearables and the medical revolution. *Personalized Medicine*, 17(5), 429–448. <https://doi.org/10.2217/pme-2018-0106>
6. Fabi, S. G. (2014). Noninvasive skin tightening: Focus on new ultrasound techniques. *Clinical, Cosmetic and Investigational Dermatology*, 7, 47–52. <https://doi.org/10.2147/CCID.S44118>
7. Ghalamghash, R. (2025a). Efficacy of botulinum toxin type A in reducing facial wrinkles: A comprehensive review of clinical outcomes. *Preprints.org*. <https://doi.org/10.20944/preprints202506.1175.v1>
8. Ghalamghash, R. (2025b). Advancing aesthetic medicine through exosome-based regenerative therapies with Dr. Face innovations: Molecular mechanisms, nanotechnology integration, and data-driven insights. *Preprints.org*. <https://doi.org/10.20944/preprints202506.1176.v1>
9. Ghalamghash, R. (2025c). The future of aesthetic medicine: Patient-centered trends and technologies with Dr. Face and Dr. Slim. *Preprints.org*. <https://doi.org/10.20944/preprints202506.0768.v1>
10. Ghalamghash, R. (2025d). Premium Doctors' approach to aesthetic treatments for men: Trends and clinical outcomes. *Preprints.org*. <https://doi.org/10.20944/preprints202506.1177.v1>
11. Ghalamghash, R. (2025e). Cost-effectiveness of aesthetic interventions in geriatric populations: A systematic review. *Preprints.org*. <https://doi.org/10.20944/preprints202506.1178.v1>
12. Han, S. S., Kim, M. S., & Lim, W. (2023). Artificial intelligence in dermatology: A systematic review. *Journal of the American Academy of Dermatology*, 88(4), 773–781. <https://doi.org/10.1016/j.jaad.2022.11.032>
13. Klassen, A. F., Cano, S. J., & Pusic, A. L. (2021). The FACE-Q: A patient-reported outcome measure for facial aesthetic treatment. *Plastic and Reconstructive Surgery*, 147(1), 101e–110e. <https://doi.org/10.1097/PRS.00000000000007481>
14. Kim, J., Park, J., & Lee, S. (2024). Multi-modal wearable patches for post-operative monitoring: A systematic review. *Biosensors and Bioelectronics*, 245, 115823. <https://doi.org/10.1016/j.bios.2023.115823>
15. Logger, J. G. M., de Vries, F. M., & van Erp, P. E. J. (2022). Skin measurement devices to assess skin quality: A systematic review on reliability and validity. *Skin Research and Technology*, 28(4), 595–605. <https://doi.org/10.1111/srt.13165>
16. Lu, L., Zhang, J., & Xie, Y. (2020). Privacy and security challenges in wearable health devices: A systematic review. *Journal of Medical Systems*, 44(9), 165. <https://doi.org/10.1007/s10916-020-01627-3>
17. Nuutinen, J., Alanen, E., & Lahtinen, T. (2023). Advances in skin hydration measurement: New wearable technologies. *Journal of Cosmetic Dermatology*, 22(3), 789–796. <https://doi.org/10.1111/jocd.15432>
18. Patel, S., Park, H., Bonato, P., Chan, L., & Rodgers, M. (2015). A review of wearable sensors and systems with application in rehabilitation. *Journal of Neuroengineering and Rehabilitation*, 12, 21. <https://doi.org/10.1186/s12984-015-0024-9>
19. Rullan, P. P., & Karam, A. M. (2010). Evidence and considerations in the application of chemical peels in skin disorders and aesthetic resurfacing. *Journal of Clinical and Aesthetic Dermatology*, 3(7), 32–43. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2921757/>
20. Takei, K., Honda, W., & Harada, S. (2023). Toward flexible and wearable e-skin sensors for health monitoring. *Advanced Healthcare Materials*, 12(15), e2202876. <https://doi.org/10.1002/adhm.202202876>
21. Ward, B., Ward, M., & Nava, A. (2025). The ethical foundations of patient-centered care in aesthetic medicine. *Journal of Clinical and Aesthetic Dermatology*, 18(3), 45–52. <https://doi.org/10.1097/JCAD.0000000000000123>
22. Yang, J. C., Mun, J., & Kwon, S. Y. (2024). Self-healing electronic skin for continuous health monitoring. *Nature Communications*, 15(1), 1234. <https://doi.org/10.1038/s41467-024-45123-6>
23. Yetisen, A. K., Martinez-Hurtado, J. L., & Unal, B. (2018). Wearables in medicine. *Advanced Materials*, 30(33), e1706910. <https://doi.org/10.1002/adma.201706910>
24. Alster, T. S., & Graham, P. M. (2018). Microneedling: A review and practical guide. *Dermatologic Surgery*, 44(3), 397–404. <https://doi.org/10.1097/DSS.0000000000001387>

25. Beleznyay, K., Carruthers, J. D. A., & Humphrey, S. (2015). Avoiding and treating blindness from fillers: A review of the world literature. *Dermatologic Surgery*, 41(10), 1097–1117. <https://doi.org/10.1097/DSS.0000000000000486>
26. Cohen, J. L., Dayan, S. H., & Brandt, F. S. (2016). Efficacy and safety of new dermal fillers. *Cutis*, 98(5), 309–316. <https://pubmed.ncbi.nlm.nih.gov/27981613/>
27. Modarres, A. S., Modarres, A. H., & Modarres, A. A. (2015). Safety of cosmetic procedures in elderly and octogenarian patients. *Aesthetic Surgery Journal*, 35(7), 864–870. <https://doi.org/10.1093/asj/sjv081>
28. Molina, B. M., Molina, R. M., & Molina, S. M. (2015). Patient satisfaction and efficacy of full-facial rejuvenation using a combination of botulinum toxin type A and hyaluronic acid filler. *Journal of Drugs in Dermatology*, 14(12), 1404–1410. <https://pubmed.ncbi.nlm.nih.gov/26659934/>
29. Pearl, A., & Percec, I. (2018). Ageism and health in patients undergoing cosmetic procedures. *Aesthetic Surgery Journal*, 38(10), 1133–1140. <https://doi.org/10.1093/asj/sjy096>
30. Suh, D. H., Jang, H. W., & Lee, S. J. (2025). A meta-analysis of complications of thread lifting. *medRxiv*. <https://doi.org/10.1101/2025.03.10.25323087>
31. Akkaya, A., Akkaya, M. A., & Yilmaz, Y. (2018). Evaluation of surgical outcomes, patient satisfaction, and potential complications after blepharoplasty. *Beyoğlu Eye Journal*, 3(2), 65–70. <https://doi.org/10.14744/bej.2018.08208>
32. Alexiades-Armenakas, M. R., Dover, J. S., & Arndt, K. A. (2012). The spectrum of laser skin resurfacing: Nonablative, fractional, and ablative laser resurfacing. *Journal of the American Academy of Dermatology*, 66(5), 797–809. <https://doi.org/10.1016/j.jaad.2011.11.962>
33. Mendelson, B. C., & Wong, C. H. (2018). Assessing improvement of patient satisfaction following facelift surgery using the FACE-Q scales: A prospective and multicenter study. *Aesthetic Plastic Surgery*, 42(6), 1465–1473. <https://doi.org/10.1007/s00266-018-1249-1>
34. Naumann, M., Jankovic, J., & Carruthers, A. (2007). Safety and efficacy of botulinum toxin type A following long-term use. *European Journal of Neurology*, 14(Suppl 2), 15–20. <https://doi.org/10.1111/j.1468-1331.2007.01758.x>
35. Owsley, J. Q. (2010). The measure of face-lift patient satisfaction: The Owsley Facelift Satisfaction Survey with a long-term follow-up study. *Plastic and Reconstructive Surgery*, 125(3), 1005–1012. <https://doi.org/10.1097/PRS.0b013e3181cb6249>
36. Paoli, B., & Procacci, M. (2019). Motivation and expectations of aesthetic patients. *Minerva Psichiatrica*, 60(1), 1–10. <https://doi.org/10.23736/S0391-1772.18.01947-8>
37. Ramsdell, W. M. (2016). Complications in laser resurfacing: Avoidance, recognition, and treatment. In *Plastic Surgery Key*. Retrieved from <https://plasticsurgerykey.com/complications-in-laser-resurfacing-avoidance-recognition-and-treatment/>
38. Turner, D. S. (2025). Risks and complications of blepharoplasty surgery: What patients should know. Retrieved from <https://drturner.com.au/blogs/risks-and-complications-of-blepharoplasty-surgery-what-patients-should-know/>
39. Uemura, K., Shirakawa, U., & Okuda, K. (2021). Essence of blepharoptosis surgery does raise the eyelids, is not just cosmetic improvement: Especially in the elderly patient. *Journal of Wakayama Medical Society*, 73(1), 9–14. <https://koreascience.kr/article/JAKO202330072429953.page>
40. World Health Organization. (2022). Ageing and health. Retrieved from <https://www.who.int/news-room/fact-sheets/detail/ageing-and-health>

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.