Forensic Healthcare Online

Assessing Bruising: Peer-Reviewed Literature

This clinical guide provides an overview of the literature focused on bruise assessments as they pertain to some of the common questions that arise in our work: can you accurately age bruises in living patients and can you identify bruising that cannot be seen (or easily seen) with white light? They've been split out into the two categories, although note that Hughes et al, overlaps the two categories, but has been placed in the Aging section. I have also included the new protocol for use of ALS assessment at the end.

Aging Bruises:

Grossman, S. E., Johnston, A., Vanezis, P., & Perrett, D. (2011). Can we assess the age of bruises? An attempt to develop an objective technique. *Medicine, science, and the law*, *51*(3), 170–176. https://doi.org/10.1258/msl.2011.010135

https://pubmed.ncbi.nlm.nih.gov/21905574/

Hughes, V. K., Ellis, P. S., & Langlois, N. E. (2006). Alternative light source (polilight) illumination with digital image analysis does not assist in determining the age of bruises. *Forensic science international*, *158*(2-3), 104–107. https://doi.org/10.1016/j.forsciint.2005.04.042

https://pubmed.ncbi.nlm.nih.gov/15996845/

Langlois N. E. (2007). The science behind the quest to determine the age of bruises-a review of the English language literature. *Forensic science, medicine, and pathology*, *3*(4), 241–251. https://doi.org/10.1007/s12024-007-9019-3

https://pubmed.ncbi.nlm.nih.gov/25869263/

Langlois, N. E., & Gresham, G. A. (1991). The ageing of bruises: a review and study of the colour changes with time. *Forensic science international*, *50*(2), 227–238. https://doi.org/10.1016/0379-0738(91)90154-b

https://pubmed.ncbi.nlm.nih.gov/1748358/

Maguire, S., Mann, M. K., Sibert, J., & Kemp, A. (2005). Can you age bruises accurately in children? A systematic review. *Archives of disease in childhood*, *90*(2), 187–189. https://doi.org/10.1136/adc.2003.044073

https://pubmed.ncbi.nlm.nih.gov/15665179/

Mosqueda, L., Burnight, K., & Liao, S. (2005). The life cycle of bruises in older adults. *Journal of the American Geriatrics Society*, *53*(8), 1339–1343. https://doi.org/10.1111/j.1532-5415.2005.53406.x

https://pubmed.ncbi.nlm.nih.gov/16078959/

Nash, K. R., & Sheridan, D. J. (2009). Can one accurately date a bruise? State of the science. *Journal of forensic nursing*, *5*(1), 31–37. https://doi.org/10.1111/j.1939-3938.2009.01028.x

https://pubmed.ncbi.nlm.nih.gov/19222687/

Pilling, M. L., Vanezis, P., Perrett, D., & Johnston, A. (2010). Visual assessment of the timing of bruising by forensic experts. *Journal of forensic and legal medicine*, *17*(3), 143–149. https://doi.org/10.1016/j.jflm.2009.10.002

https://pubmed.ncbi.nlm.nih.gov/20211455/

Tirado, J., & Mauricio, D. (2021). Bruise dating using deep learning. *Journal of forensic sciences*, *66*(1), 336–346. https://doi.org/10.1111/1556-4029.14578

https://pubmed.ncbi.nlm.nih.gov/32991003/

Alternate Light Source Assessment:

Downing, N. R., Scafide, K. N., Ali, Z., & Hayat, M. J. (2024). Visibility of inflicted bruises by alternate light: Results of a randomized controlled trial. *Journal of forensic sciences*, *69*(3), 880–887. https://doi.org/10.1111/1556-4029.15481

https://pubmed.ncbi.nlm.nih.gov/38323488/

Limmen, R. M., Ceelen, M., Reijnders, U. J., Joris Stomp, S., de Keijzer, K. C., & Das, K. (2013). Enhancing the visibility of injuries with narrow-banded beams of light within the visible light spectrum. *Journal of forensic sciences*, *58*(2), 518–522. https://doi.org/10.1111/1556-4029.12042

https://pubmed.ncbi.nlm.nih.gov/23278497/

Lombardi, M., Canter, J., Patrick, P. A., & Altman, R. (2015). Is fluorescence under an alternate light source sufficient to accurately diagnose subclinical bruising?. *Journal of forensic sciences*, *60*(2), 444–449. https://doi.org/10.1111/1556-4029.12698

https://pubmed.ncbi.nlm.nih.gov/25677469/

Nijs, H. G. T., De Groot, R., Van Velthoven, M. F. A. M., & Stoel, R. D. (2019). Is the visibility of standardized inflicted bruises improved by using an alternate ('forensic') light source?. *Forensic science international*, *294*, 34–38. https://doi.org/10.1016/j.forsciint.2018.10.029

https://pubmed.ncbi.nlm.nih.gov/30447485/

Olds, K., Byard, R. W., Winskog, C., & Langlois, N. E. (2016). Validation of ultraviolet, infrared, and narrow band light alternate light sources for detection of bruises in a pigskin model. *Forensic science, medicine, and pathology*, *12*(4), 435–443. https://doi.org/10.1007/s12024-016-9813-x

https://pubmed.ncbi.nlm.nih.gov/27669715/

Scafide, K. N., Downing, N. R., Kutahyalioglu, N. S., Sebeh, Y., Sheridan, D. J., & Hayat, M. J. (2021). Quantifying the Degree of Bruise Visibility Observed Under White Light and an Alternate Light Source. *Journal of forensic nursing*, *17*(1), 24–33. https://doi.org/10.1097/JFN.0000000000000304

https://pubmed.ncbi.nlm.nih.gov/33278184/

Scafide, K. N., Downing, N. R., Kutahyalioglu, N. S., Sheridan, D. J., Langlois, N. E., & Hayat, M. J. (2022). Predicting alternate light absorption in areas of trauma based on degree of skin pigmentation: Not all wavelengths are equal. *Forensic science*

international, *339*, 111410. https://doi.org/10.1016/j.forsciint.2022.111410

https://pubmed.ncbi.nlm.nih.gov/35940073/

Scafide, K. N., Ekroos, R. A., Mallinson, R. K., Alshahrani, A., Volz, J., Holbrook, D. S., & Hayat, M. J. (2023). Improving the Forensic Documentation of Injuries Through Alternate Light: A Researcher-Practitioner Partnership. *Journal of forensic nursing*, *19*(1), 30–40. https://doi.org/10.1097/JFN.0000000000000389

https://pubmed.ncbi.nlm.nih.gov/36812372/

Scafide, K. N., Sharma, S., Tripp, N. E., & Hayat, M. J. (2020). Bruise detection and visibility under alternate light during the first three days post-trauma. *Journal of forensic and legal medicine*, *69*, 101893. https://doi.org/10.1016/j.jflm.2019.101893

https://pubmed.ncbi.nlm.nih.gov/32056810/

Scafide, K. N., Sheridan, D. J., Downing, N. R., & Hayat, M. J. (2020). Detection of Inflicted Bruises by Alternate Light: Results of a Randomized Controlled Trial. *Journal of forensic sciences*, *65*(4), 1191–1198. https://doi.org/10.1111/1556-4029.14294

https://pubmed.ncbi.nlm.nih.gov/32012284/

Sully, C. J., Olds, K. L., & Langlois, N. E. I. (2019). Evaluation of a model of bruising in pigmented skin for investigating the potential for alternate light source illumination to enhance the appearance of bruises by photography of visible and infrared light. *Forensic science, medicine, and pathology*, *15*(4), 555–563. https://doi.org/10.1007/s12024-019-00135-0

https://pubmed.ncbi.nlm.nih.gov/31250256/

Tyr, A., Heldring, N., & Zilg, B. (2024). Examining the use of alternative light sources in medico-legal assessments of blunt-force trauma: a systematic review. *International journal of legal medicine*, *138*(5), 1925–1938. https://doi.org/10.1007/s00414-024-03262-8 (FREE FULL TEXT)

https://pubmed.ncbi.nlm.nih.gov/38844617/

Assessing Bruising: Protocols

Alternate Light Assessment of Skin Trauma (AtLAST) Guidelines for Clinical Application
https://www.atlastclinicalguide.com/