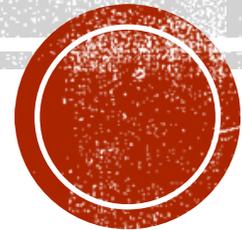


CAPILLAROSCOPY / OPHTHALMOSCOPE WORKSHOP

“How Many Fingers Do You See: Tools of the Trade from Fundoscopy to Capillaroscopy”

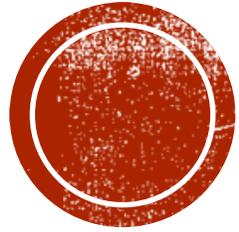
Brandon Ko, APRN DNP C-PNP & Brandon Runyon OD, FAAO



OBJECTIVES

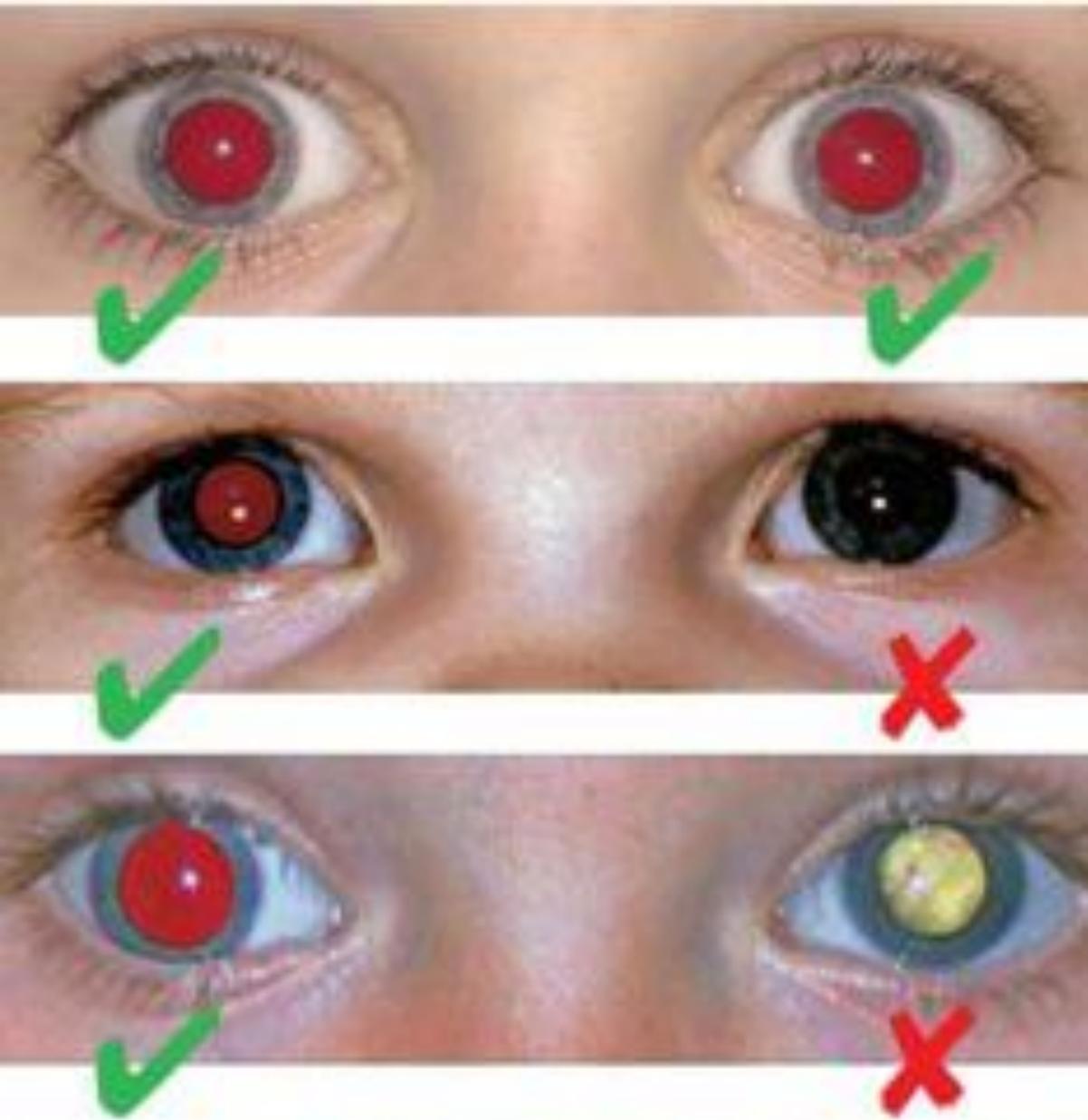
- Teach a practical eye exam using the ophthalmoscope for the Rheumatology clinic visit
- Teach how to use the ophthalmoscope to examine nailbed capillaries
- Teach how to use the hand held digital microscope to examine nailbed capillaries
- Teach how to use the high resolution digital capillaroscope to examine nailbed capillaries



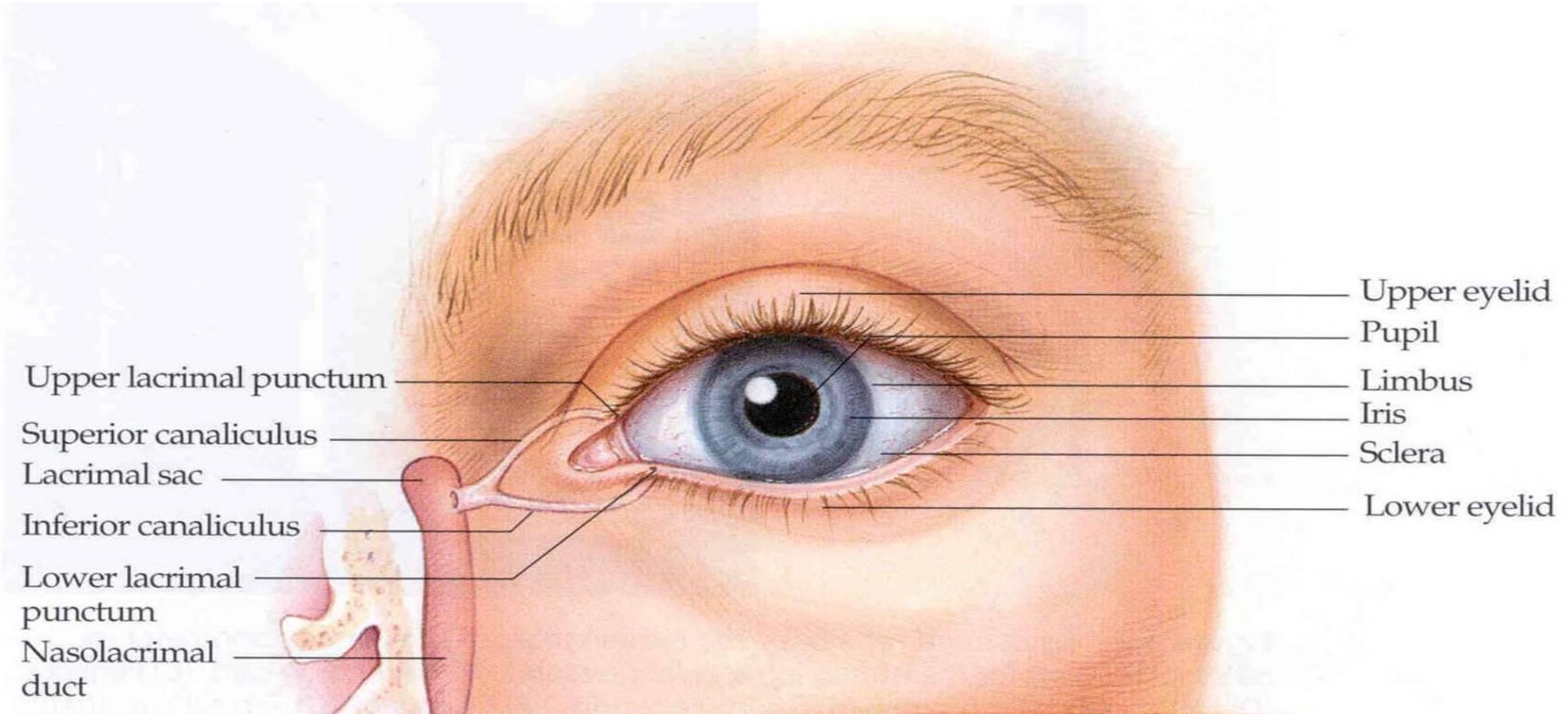


OPHTHALMOSCOPY FOR THE EYE





GROSS OCULAR ANATOMY



BASIC EYE ANATOMY

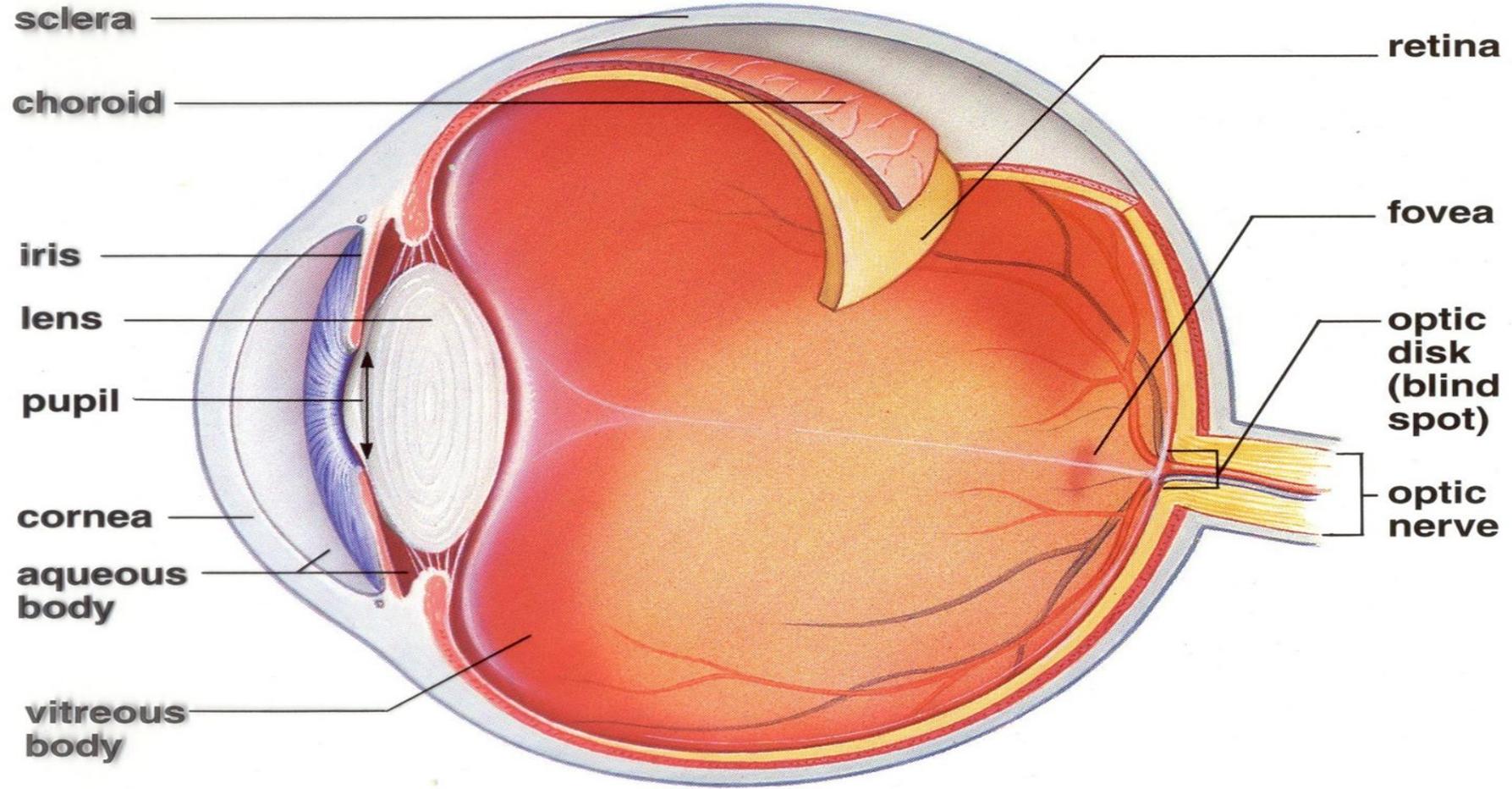
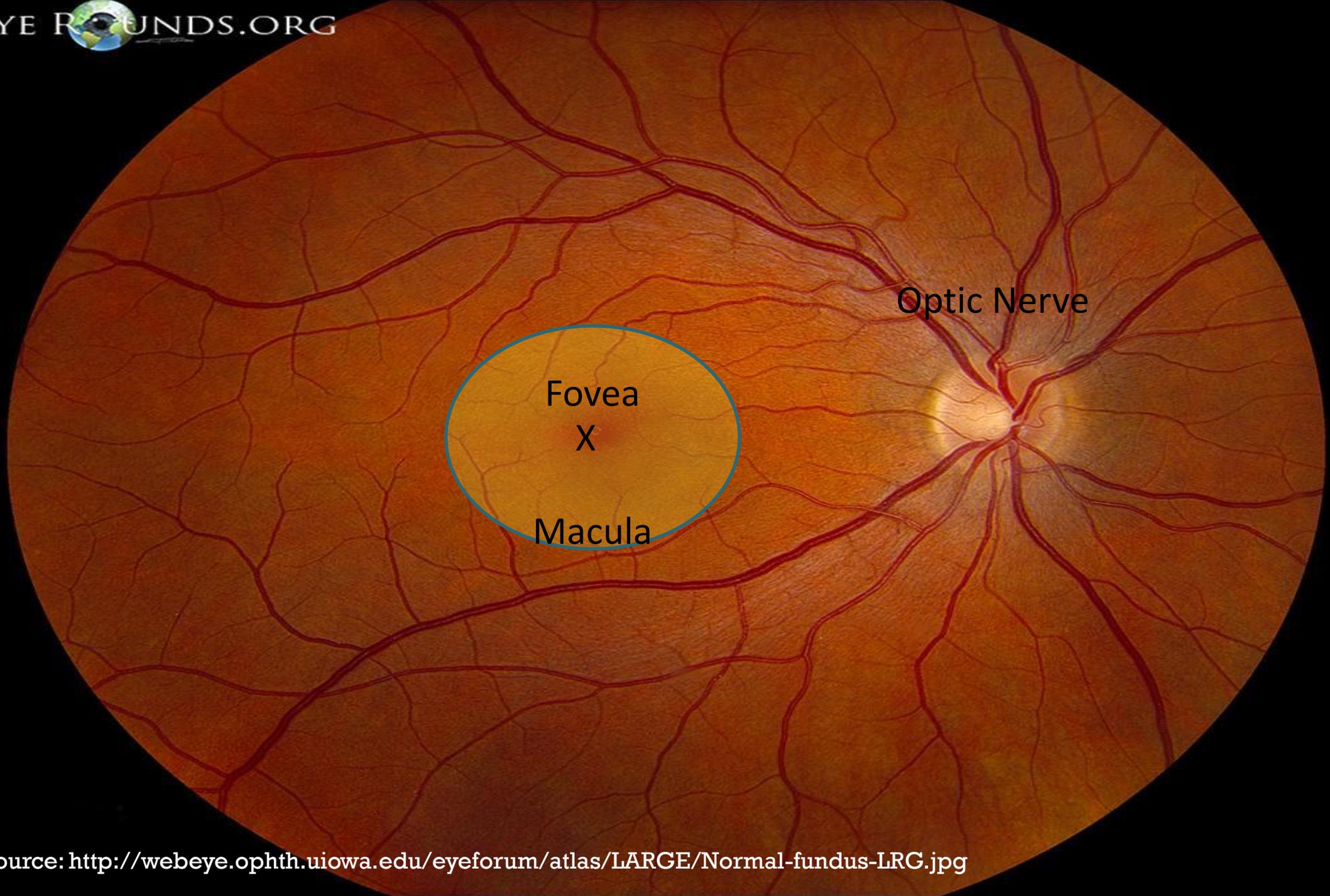


Fig. 32.30 Structure of the human eye.







Optic Nerve

Fovea
X

Macula



CAPILLAROSCOPY OVERVIEW

When to use it:

- Primary vs. Secondary Raynauds
- Suspicion for Systemic Sclerosis/Sclerodactyly

What's it for:

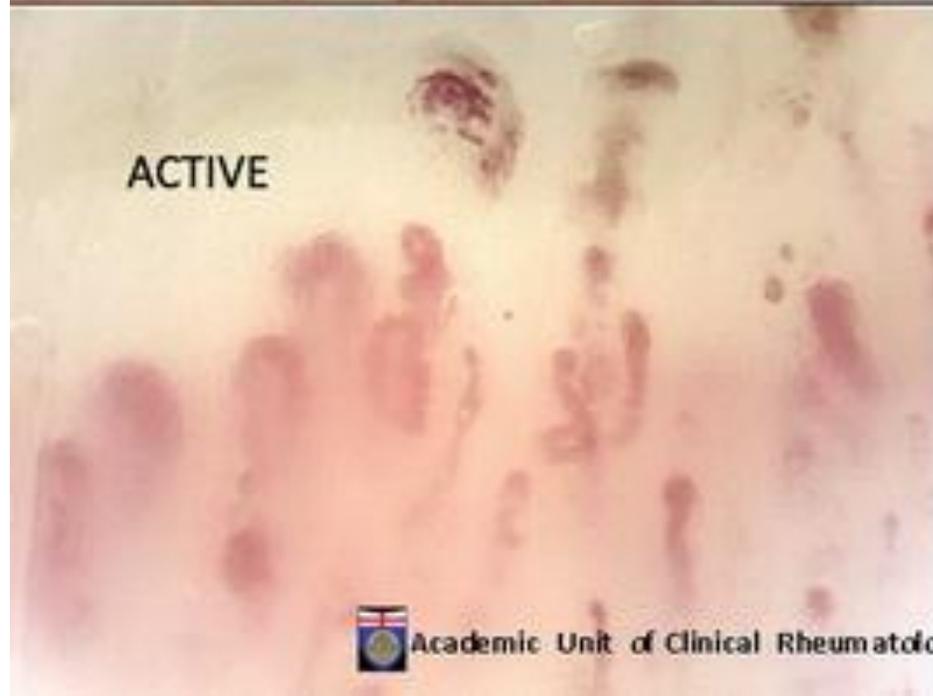
- Risk stratification – progression TO disease
- Monitoring – progression OF disease

Emerging associations:

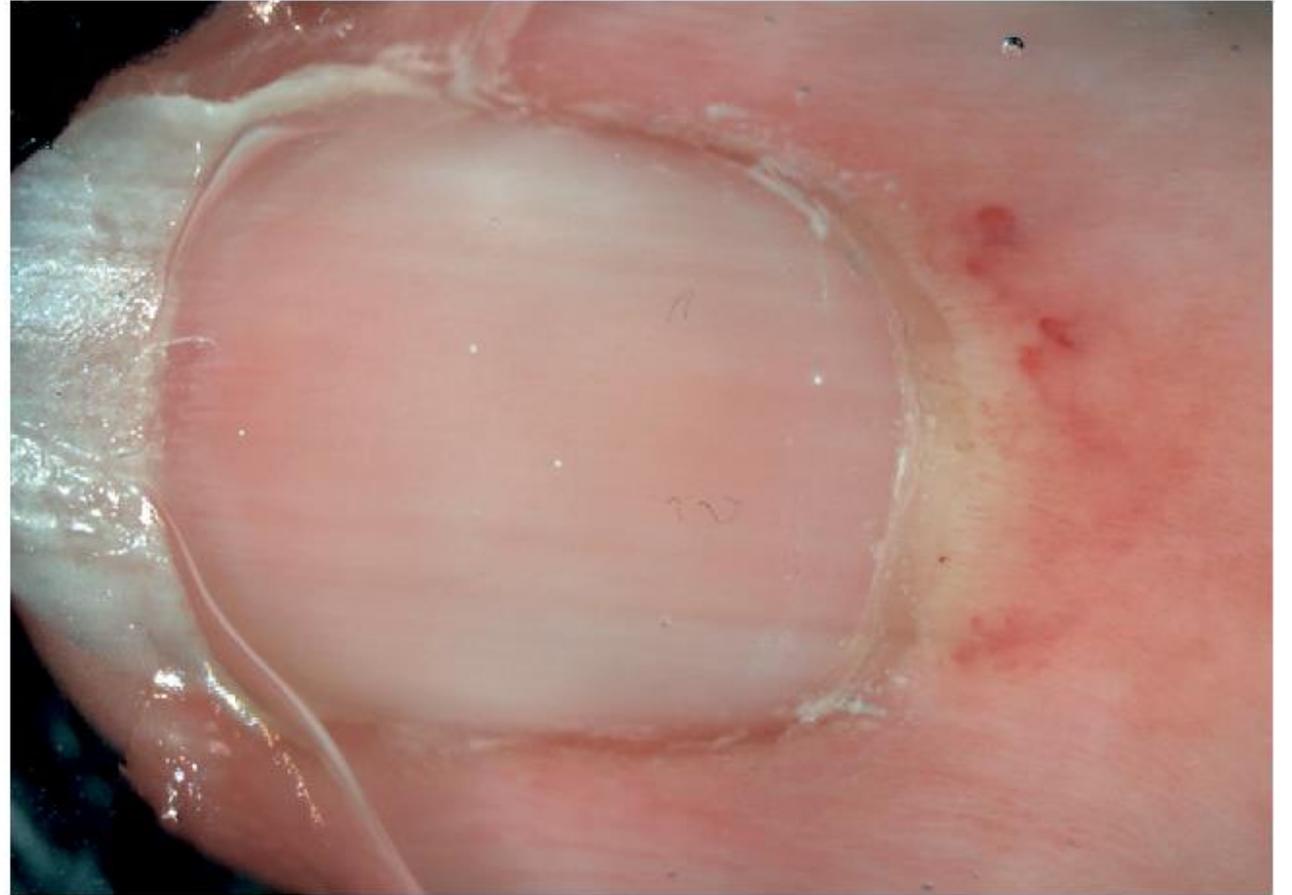
- Dermatomyositis, MCTD



NORMAL VS. ABNORMAL



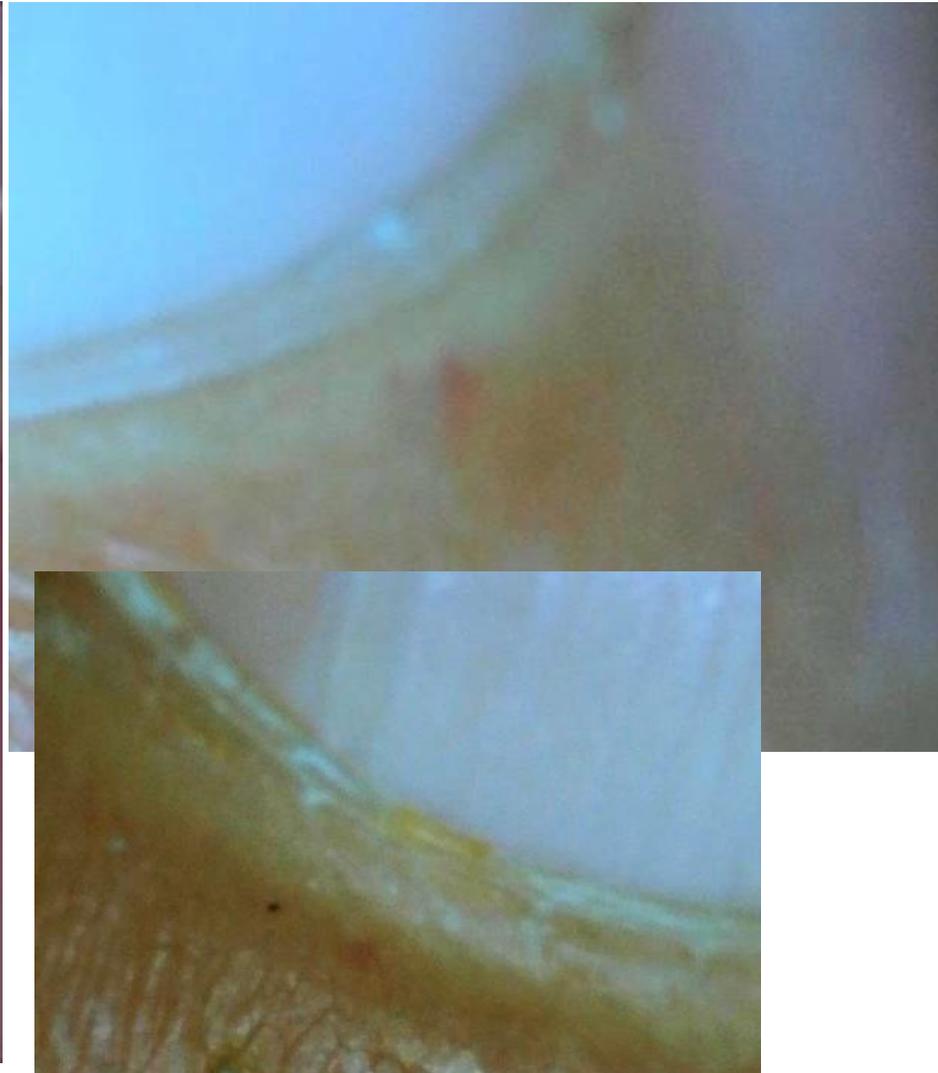
VISUAL INSPECTION



OPHTHALMOSCOPE



HANDHELD DIGITAL MICROSCOPE



Save 12%

\$22⁷⁹ Typical
Exclusive Prime
✓prime Two-D
FREE delivery M



Wireless Dig
Microscopes
★★★★★
\$41⁸⁹
Save 25% wi
✓prime Two-D
FREE delivery M
[+1 color/pattern](#)



Digital Micr
Magnificati
★★★★★
\$32⁹⁹ Typical
Save \$8.00 w
✓prime
FREE delivery T



Sponsored ⓘ
Wireless Dig
Microscopes
★★★★★
\$41⁸⁹
Save 25% wi
✓prime Two-D
FREE delivery

DINOLITE



Premier Series
AM4113-N5UT
Capillaroscope

\$499.00





Don't forget the
capillaroscopy
guide in the
back!

REFERENCES

1. Smith, V., Herrick, A. L., Ingegnoli, F., Damjanov, N., De Angelis, R., Denton, C. P., Distler, O., Espejo, K., Foeldvari, I., Frech, T., Garro, B., Gutierrez, M., Gyger, G., Hachulla, E., Hesselstrand, R., Iagnocco, A., Kayser, C., Melsens, K., Müller-Ladner, U., Paolino, S., ... EULAR Study Group on Microcirculation in Rheumatic Diseases and the Scleroderma Clinical Trials Consortium Group on Capillaroscopy (2020). Standardisation of nailfold capillaroscopy for the assessment of patients with Raynaud's phenomenon and systemic sclerosis. *Autoimmunity reviews*, 19(3), 102458. <https://doi.org/10.1016/j.autrev.2020.102458>
2. Borges, A.S., Campos, S., & Brasileiro, A. (2018). Mucosal and Periungual Telangiectasia as Signs of Systemic Disease. *Acta medica portuguesa*, 31 2, 133 .
3. Bergman, R., Sharony, L., Schapira, D., Nahir, M., & Balbir-Gurman, A. (2003). The handheld dermatoscope as a nail-fold capillaroscopic instrument. *Archives of dermatology*, 139 8, 1027-30 .
4. El Miedany, Y., Ismail, S., Wadie, M., & Hassan, M. (2022). Nailfold capillaroscopy: tips and challenges. *Clinical rheumatology*, 41(12), 3629–3640. <https://doi.org/10.1007/s10067-022-06354-1>
5. Herrick, A. L., Berks, M., & Taylor, C. J. (2021). Quantitative nailfold capillaroscopy-update and possible next steps. *Rheumatology (Oxford, England)*, 60(5), 2054–2065. <https://doi.org/10.1093/rheumatology/keab006>
6. Lambova S. N. (2020). Nailfold Capillaroscopy - Practical Implications for Rheumatology Practice. *Current rheumatology reviews*, 16(2), 79–83. <https://doi.org/10.2174/157339711602200415083444>
7. Roberts-Thomson, P. J., Patterson, K. A., & Walker, J. G. (2023). Clinical utility of nailfold capillaroscopy. *Internal medicine journal*, 53(5), 671–679. <https://doi.org/10.1111/imj.15966>
8. Sakamoto, T., Kaburaki, M., & Shimizu, T. (2022). Nailfold capillaroscopy findings and systemic sclerosis. *QJM : monthly journal of the Association of Physicians*, 115(4), 266. <https://doi.org/10.1093/qjmed/hcab156>
9. Dima, A., Berza, I., Popescu, D. N., & Parvu, M. I. (2021). Nailfold capillaroscopy in systemic diseases: short overview for internal medicine. *Romanian journal of internal medicine = Revue roumaine de medecine interne*, 59(3), 201–217. <https://doi.org/10.2478/rjim-2021-0007>
10. Gracia Tello, B., & Ramos Ibañez, E. (2023). Nailfold capillaroscopy. *Medicina clinica*, 160(11), 499–500. <https://doi.org/10.1016/j.medcli.2023.01.011>



REFERENCES

11. Ruhlman, Deborah & Otten, Christina & Colella, Christine. (2014). Dermatomyositis. *The Journal for Nurse Practitioners*. 10. 674–681. [10.1016/j.nurpra.2014.07.020](https://doi.org/10.1016/j.nurpra.2014.07.020).
12. Chojer P, Mahajan B B. Nail fold dermoscopy in collagen vascular disorders: A cross-sectional study. *Indian J Dermatol Venereol Leprol* 2019;85:439
13. Li, A. R., Burke, C. D., Purvis, C. S., & Lee, L. W. (2022). Association between nailfold capillaroscopy abnormalities and autoimmune disease in pediatric populations. *Pediatric dermatology*, 39(2), 197–204. <https://doi.org/10.1111/pde.14926>
14. Torrente-Segarra, V., Hernández-Baldizón, S., Mosquera, J. M., & Antón, J. (2021). The importance of nailfold capillaroscopy in children with rheumatic diseases. *Clinical and experimental rheumatology*, 39 Suppl 128(1), 35.
15. Smith, V., Vanhaecke, A., Herrick, A. L., Distler, O., Guerra, M. G., Denton, C. P., Deschepper, E., Foeldvari, I., Gutierrez, M., Hachulla, E., Ingegnoli, F., Kubo, S., Müller-Ladner, U., Riccieri, V., Sulli, A., van Laar, J. M., Vonk, M. C., Walker, U. A., Cutolo, M., & EULAR Study Group on Microcirculation in Rheumatic Diseases (2019). Fast track algorithm: How to differentiate a "scleroderma pattern" from a "non-scleroderma pattern". *Autoimmunity reviews*, 18(11), 102394. <https://doi.org/10.1016/j.autrev.2019.102394>
16. Smith, V., Herrick, A. L., Ingegnoli, F., Damjanov, N., De Angelis, R., Denton, C. P., Distler, O., Espejo, K., Foeldvari, I., Frech, T., Garro, B., Gutierrez, M., Gyger, G., Hachulla, E., Hesselstrand, R., Iagnocco, A., Kayser, C., Melsens, K., Müller-Ladner, U., Paolino, S., ... EULAR Study Group on Microcirculation in Rheumatic Diseases and the Scleroderma Clinical Trials Consortium Group on Capillaroscopy (2020). Standardisation of nailfold capillaroscopy for the assessment of patients with Raynaud's phenomenon and systemic sclerosis. *Autoimmunity reviews*, 19(3), 102458. <https://doi.org/10.1016/j.autrev.2020.102458>
17. Melsens, K., Cutolo, M., Schonenberg-Meinema, D., Foeldvari, I., Leone, M. C., Mostmans, Y., Badot, V., Cimaz, R., Dehoorne, J., Deschepper, E., Frech, T., Hernandez-Zapata, J., Ingegnoli, F., Khan, A., Krasowska, D., Lehmann, H., Makol, A., Mesa-Navas, M. A., Michalska-Jakubus, M., Müller-Ladner, U., ... EULAR Study Group on Microcirculation in Rheumatic Diseases (2023). Standardized nailfold capillaroscopy in children with rheumatic diseases: a worldwide study. *Rheumatology (Oxford, England)*, 62(4), 1605–1615. <https://doi.org/10.1093/rheumatology/keac487>
18. Ingegnoli, F., & Herrick, A. L. (2013). Nailfold capillaroscopy in pediatrics. *Arthritis care & research*, 65(9), 1393–1400. <https://doi.org/10.1002/acr.2202>.

