

SUPPLEMENTARY MATERIAL

Educational efficacy of an onsite training course in improving theoretical and practical skills in nailfold videocapillaroscopy among first-year rheumatology trainees: experience from the Italian Society of Rheumatology Inaugural Residential Program

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Supplementary Table 1. Course program.

LECTIO MAGISTRALIS: <i>Pathophysiology of the microcirculation in systemic connective tissue diseases: diagnostic role of capillaroscopy</i>
FIRST SESSION: Instrumentation, methodology, and pitfalls to avoid in capillaroscopy Capillaroscopic nomenclature and reporting Capillaroscopy in healthy subjects and in primary Raynaud's phenomenon
PRACTICAL/DEMONSTRATIVE SESSION Basic practical guidance on the use of instruments and the application of the technique, with projection and discussion of images obtained from healthy volunteers and patients
SECOND SESSION: Capillaroscopy in Systemic Sclerosis Capillaroscopy in Scleroderma-related connective tissue diseases Capillaroscopy in non-Scleroderma-related rheumatic diseases Capillaroscopy in pediatric age Capillaroscopy in patients' clinical and therapeutic follow-up
INTERACTIVE SESSION Practical capillaroscopy session on patients with rotating small groups of participants (tutor assisted)

Supplementary Table 2. Pre- and post-course questions and answers in the theoretical test.

Question 1 (Q1): Which instrument used to perform a capillaroscopic examination currently offers the greatest advantages, although involving relatively high costs?	A. Dermatoscope B. Stereomicroscope C. Videocapillaroscope D. Smartphone device E. Microscopic probe with USB port
Question 2 (Q2): What behaviour is recommended for the patient to best prepare for the examination?	A. Undergo a thermal shock to reveal otherwise difficult-to-see alterations B. Stop smoking at least 48h before the examination C. Have a manicure the day before the examination D. Rest for about 15 minutes at a stable temperature E. Remove nail polish on the morning of the examination
Question 3 (Q3): Which technical precaution is useful to ensure the correct execution of a capillaroscopic examination?	A. Use a maximum magnification of 100X B. Do not use cedar oil before placing the probe C. Analyze all fingers, including the first D. Keep the probe perpendicular to the analyzed area E. Apply high pressure on the capillary bed
Question 4 (Q4): Which liquid is commonly used to improve the visibility of capillaries?	A. Distilled water B. Cedar oil C. Ethanol D. Saline solution E. Chlorhexidine
Question 5 (Q5): Which of the following is one of the main features of the scleroderma capillaroscopic pattern?	A. Increased capillary density B. Snowflake capillaries C. Reduced numbers of capillaries D. Linear and parallel capillaries E. Presence of red blood cells in the tissue
Question 6 (Q6): According to the current regulations, how long must the iconographic documentation of an instrumental medical examination be retained?	A. Six months B. Five years C. Twenty years D. Until the report is delivered to the patient E. The duration varies depending on the type of examination
Question 7 (Q7): What is the normal capillary density in the periungual region (capillaries/mm)?	A. 2-4 B. < 7 C. ≥ 7 D. 10-12 E. 15-18
Question 8 (Q8): In which of the following conditions is a normal capillaroscopic pattern most likely to be found?	A. Systemic lupus erythematosus B. Systemic sclerosis C. Dermatomyositis D. Rheumatoid arthritis E. Primary Raynaud's phenomenon
Question 9 (Q9): Which of the following is not a pathological alteration observable in capillaroscopy?	A. Giant capillaries B. Peri-capillary hemorrhages C. Neo angiogenesis D. Capillary calcifications E. Avascular areas

Question 10 (Q10): How is a giant capillary defined?	A. A capillary with a size ≥ 20 micrometers (μm) B. A capillary with a size ≥ 50 micrometers (μm) C. A capillary formed by the fusion of two pre-existing capillaries D. A capillary with an enlarged afferent loop E. A capillary formed by an afferent loop larger than the efferent loop
Question 11 (Q11): A capillary density lower than 7 capillaries/mm is considered...?	A. Normal B. Hyper capillarization C. Reduced D. Sign of healing E. Artifact
Question 12 (Q12): Which capillaroscopic pattern is characterized by giant capillaries but preserved density?	A. "Early" scleroderma pattern B. "Active" scleroderma pattern C. "Late" scleroderma pattern D. Non-specific pattern E. Normal pattern
Question 13 (Q13): What does the presence of peri-capillary microhemorrhages most likely indicate in a capillaroscopic examination?	A. Acute infection B. Recent trauma C. Vascular damage D. Neoplastic disease E. Physiological variation
Question 14 (Q14): The presence of giant capillaries, reduced density, and microhemorrhages is most suggestive of which capillaroscopic pattern?	A. "Early" scleroderma pattern B. "Active" scleroderma pattern C. "Late" scleroderma pattern D. Non-specific pattern E. Normal pattern
Question 15 (Q15): What is the role of capillaroscopy in the early diagnosis of systemic sclerosis?	A. No role B. Only useful in advanced cases C. Helps to early identify specific microvascular alterations D. Only useful for monitoring E. Only used in pediatric settings
Correct answers are highlighted in bold text	

Supplementary Table 3. Post-course satisfaction survey.

Overall, how satisfied were you with the course?	1. Very little 2. Little 3. Much 4. Very much
Did the program meet your expectations? Were the agenda and activities engaging and interesting?	
How relevant were the contests presented during the course? Were the contests aligned with your interests and educational needs?	
Did the event help you achieve the expected learning outcomes?	
Were the materials provided (i.e. brochures, handouts, or digital resources) useful and informative?	

Supplementary Table 4. Pre- and post-course comparison of the percentage of correct answers in the theoretical test.

NVC topics	Written examination test	Correct Pre (%)	Correct Post (%)	p-value (FDR)
Methodology				
	Question 1 (Q1)	90.2	98.8	0.02
	Question 2 (Q2)	71.9	92.7	< 0.001
	Question 3 (Q3)	86.6	98.8	0.01
	Question 4 (Q4)	98.7	100	ns
	Question 6 (Q6)	31.7	92.7	< 0.001
	Question 15 (Q15)	100	100	ns
NVC parameters/patterns				
	Question 5 (Q5)	85.4	97.5	0.02
	Question 7 (Q7)	71.9	100	< 0.001
	Question 8 (Q8)	46.3	68.3	0.002
	Question 9 (Q9)	87.8	97.5	0.01
	Question 10 (Q10)	78	100	< 0.001
	Question 11 (Q11)	95.1	97.5	ns
	Question 12 (Q12)	70.7	97.5	< 0.001
	Question 13 (Q13)	40.2	64.6	< 0.001
	Question 14 (Q14)	73.2	97.5	< 0.001

Supplementary Table 5. Pre-course and post-course changes in trainees' self-assessment of theoretical knowledge.

		Self-evaluation knowledge post			
		None	Poor	Satisfactory	Excellent
Self-evaluation knowledge pre	None	0	2 (2.44%)	4 (4.88%)	0
	Poor	0	3 (3.66%)	51 (62.2%)	4 (4.88%)
	Satisfactory	0	0	10 (12.2%)	8 (9.76%)
	Excellent	0	0	0	0