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Background and objectives

- Nailfold capillaroscopy is being increasingly used in the diagnosis and assessment of patients with Raynaud's phenomenon and SSc.
- High magnification nailfold videocapillaroscopy (NVC) is the current gold standard, but hand-held dermoscopy is a low-cost alternative to NVC.
- Our aim was to compare dermoscopy to NVC in terms of image gradeability and pattern and to assess their accuracy in detecting SSc.

Study design and methods

- Nailfolds of adult patients with SSc, primary Raynaud's phenomenon (PRP) and healthy controls (HCs) were imaged with NVC (300x magnification) and dermoscopy (10x) during a single session.
- The images were sent to 10 observers for grading as follows: ungradeable or (if gradeable) as 'normal', 'non-specific' (N/S), or 'early', 'active' or 'late' patterns (Figure 1).
- Gradeability was compared between methods
- Capillaroscopy status (normal vs abnormal) was compared against disease status (non-SSc vs SSc) with predictive properties calculated after excluding 'non-specific'/ungradeable cases.

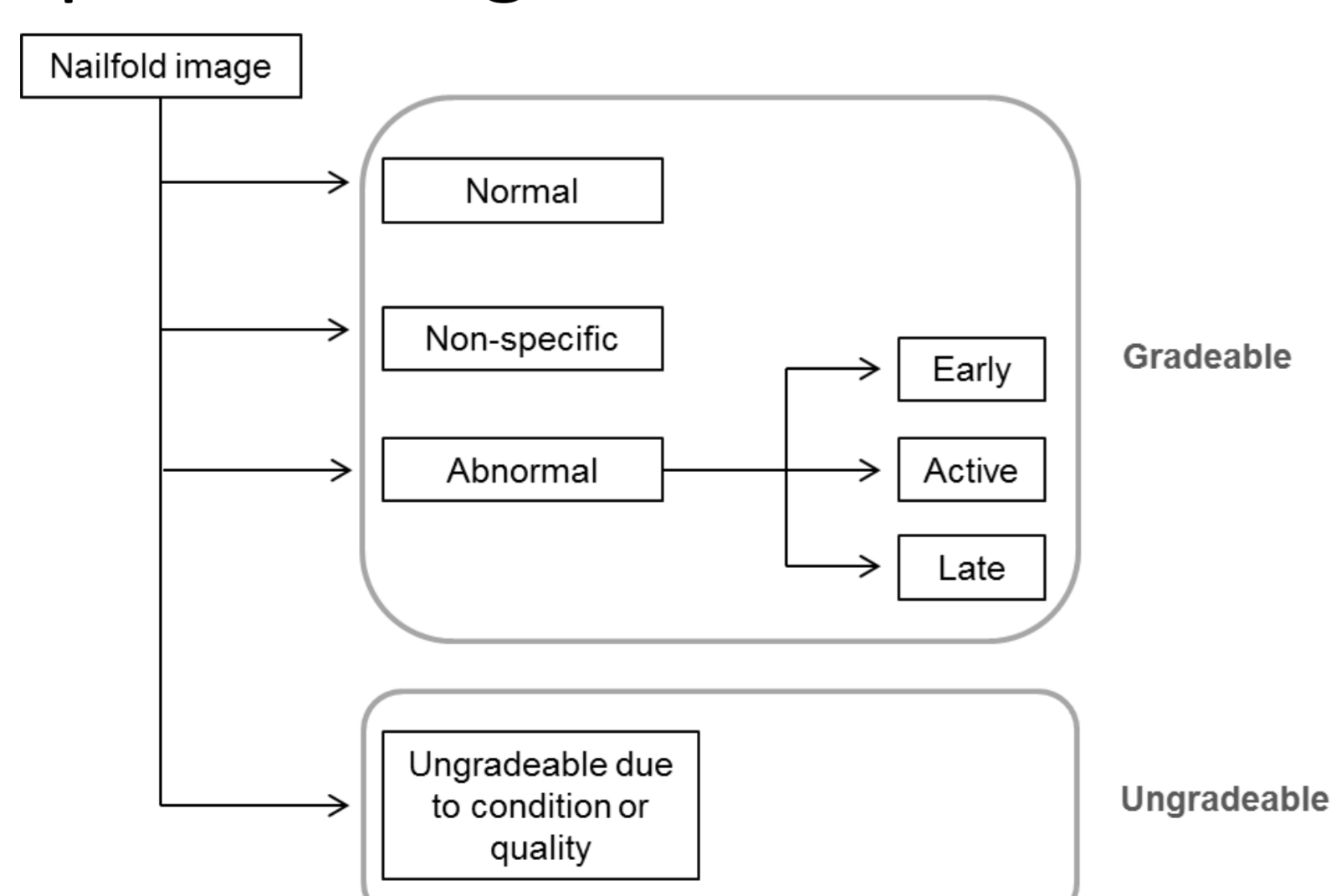


Figure 1. Defining gradeability of images

Results

- 1,376 nailfolds from 170 participants were assessed: 99 SSc (58.2%) and 71 (41.8%) healthy controls/patients with PRP (50 HCs and 21 PRP were grouped together).
- 70.9% of dermoscopy images were gradeable (975/1,376) compared to 79.3% using NVC (1,091/1,376) - with an overlap in 64.3% (885/1,376) (Figure 2).
- With dermoscopy, 9.2% of gradeable images were classed as early (9.6% with NVC), 11.0% as active (15.6% with NVC) and 7.1% as late (9.5% with NVC). (Figure 3)

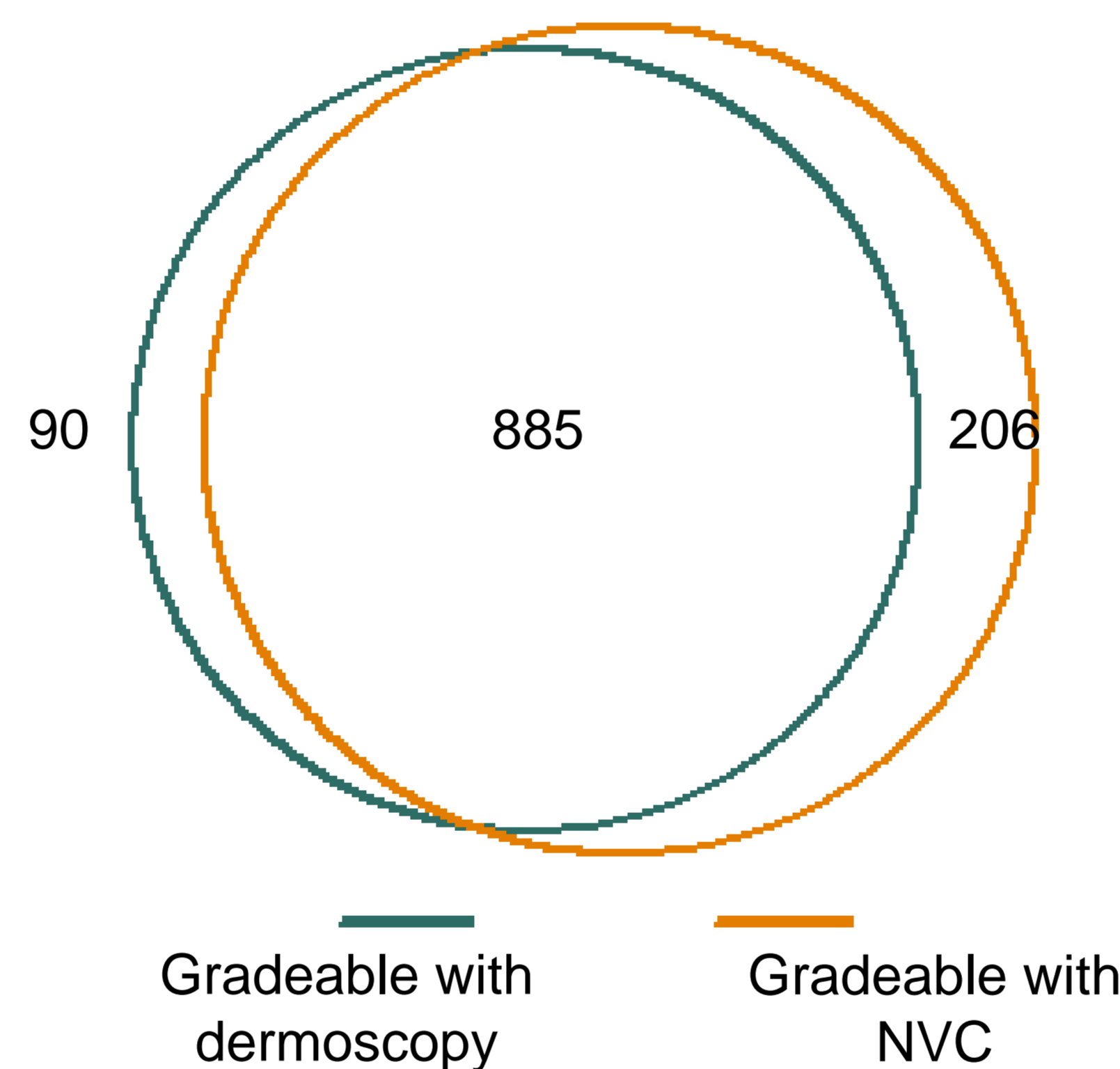


Figure 2. Venn diagram showing overlap of nailfolds that are gradeable with dermoscopy (green) and NVC (orange)

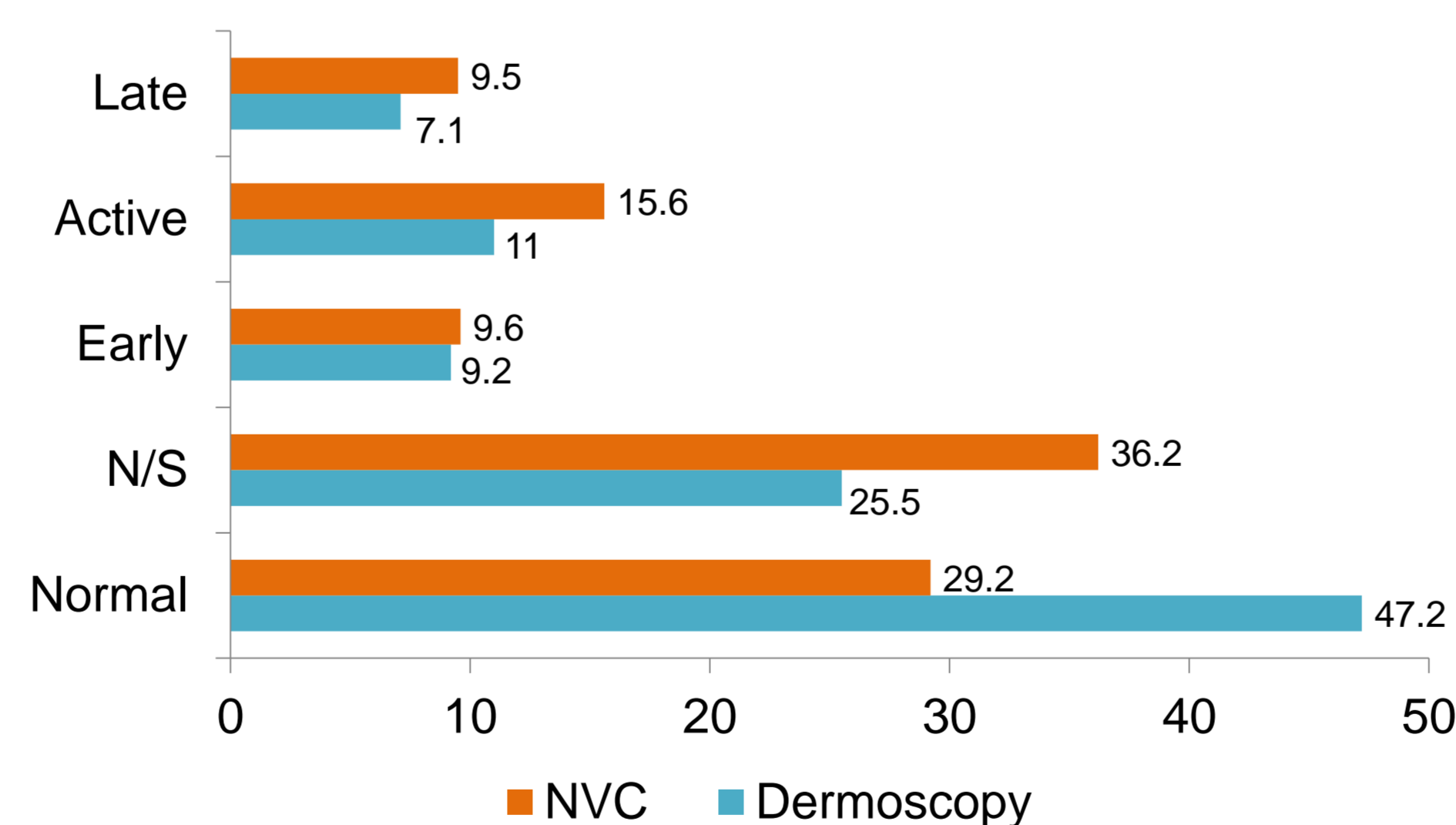


Figure 3. Percentages of total grades given to capillaroscopy images from dermoscopy (green) and NVC (orange)

- Dermoscopy had a sensitivity of 60.2% (219/364 SSc images correctly identified) and a specificity of 92.5% (273/295) (Figure 4, Table 1).
- NVC had a sensitivity of 81.6% (271/331) and a specificity of 84.6% (197/233) (Figure 4, Table 1).

Results

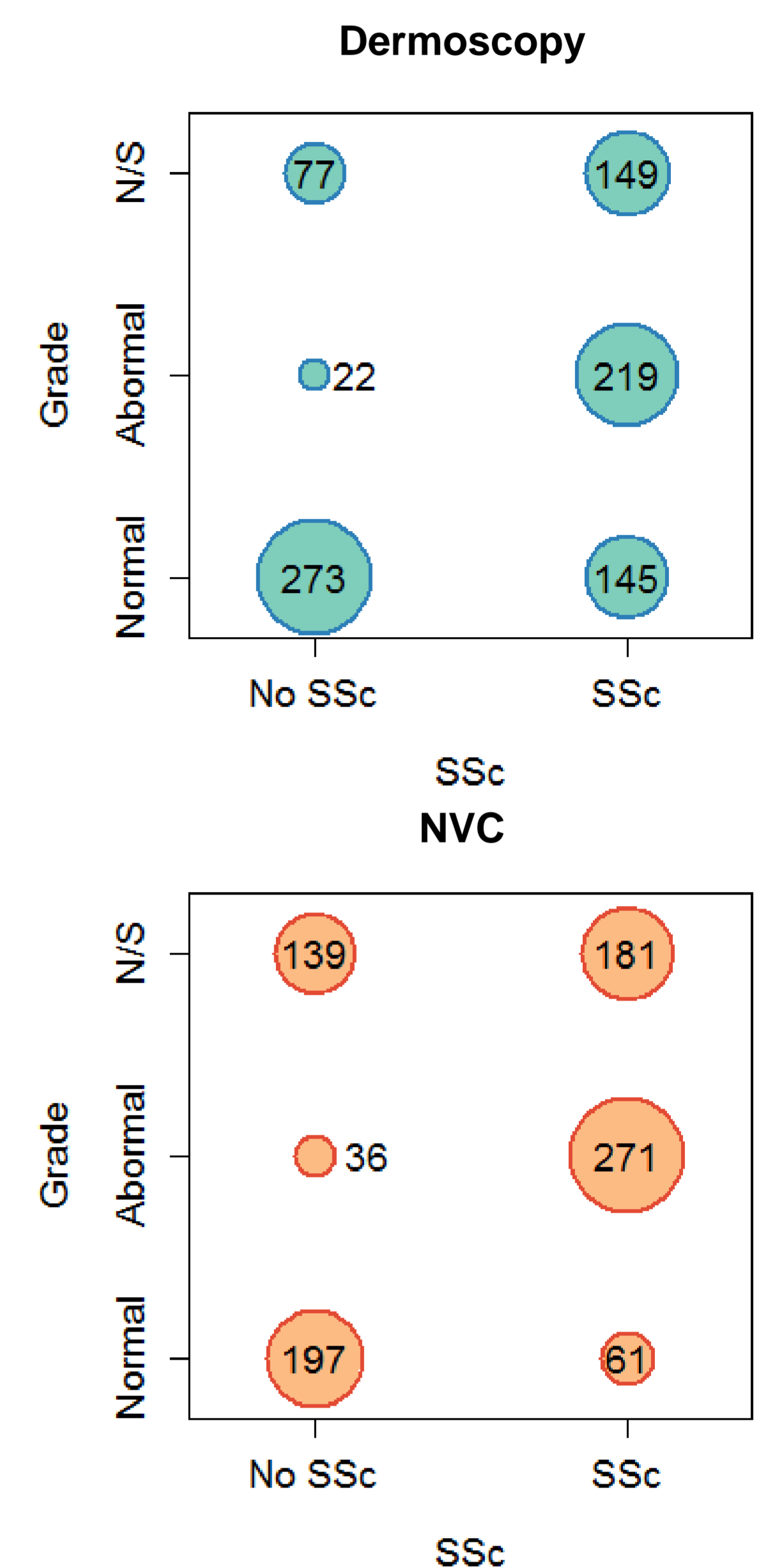


Figure 4. Normal versus abnormal (and non-specific) gradeability of dermoscopy (top) and NVC (bottom)

	Dermoscopy	NVC
Sensitivity	60.2% (219/364)	81.6% (271/331)
Specificity	92.5% (273/295)	84.6% (197/233)
PPV	90.9% (219/241)	88.3% (271/307)
NPV	65.3% (273/418)	76.4% (197/258)

Table 1. Predictive properties of both imaging methods

Conclusion

- Dermoscopy, which should be accessible to all rheumatologists, has a high rate of subjective gradeability compared to NVC.
- Nailfolds with abnormalities on dermoscopy usually belong to patients with SSc. A higher rate of patients with SSc is assessed as normal using dermoscopy compared to NVC, and this is reflected in a poor NPV: images appearing as normal on dermoscopy cannot conclusively rule out SSc.
- Dermoscopy may therefore be more specific, but less sensitive, than NVC.