

Noninvasive Skin Barrier Assessment: Multiparametric Approach and Pilot Study

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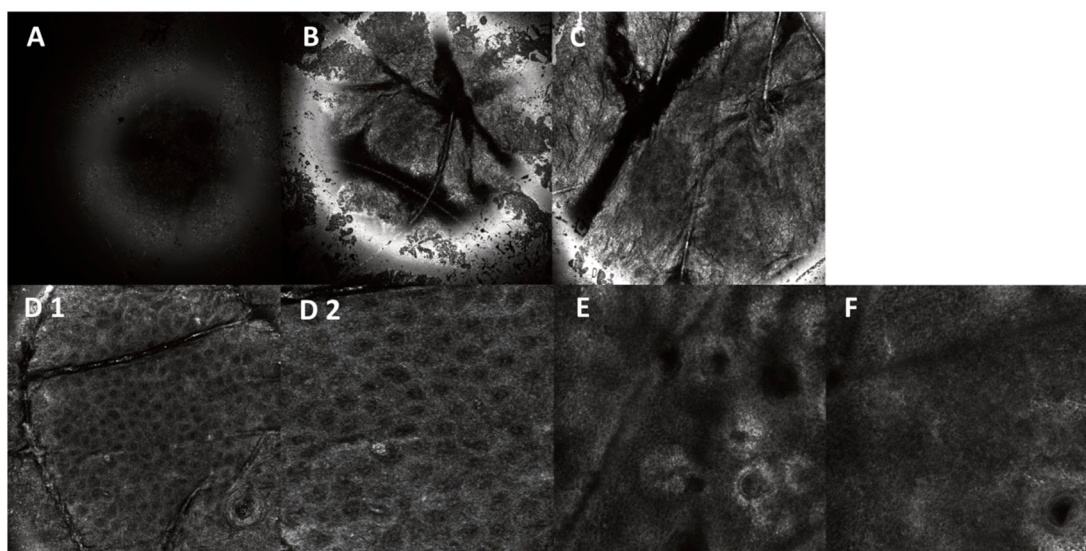
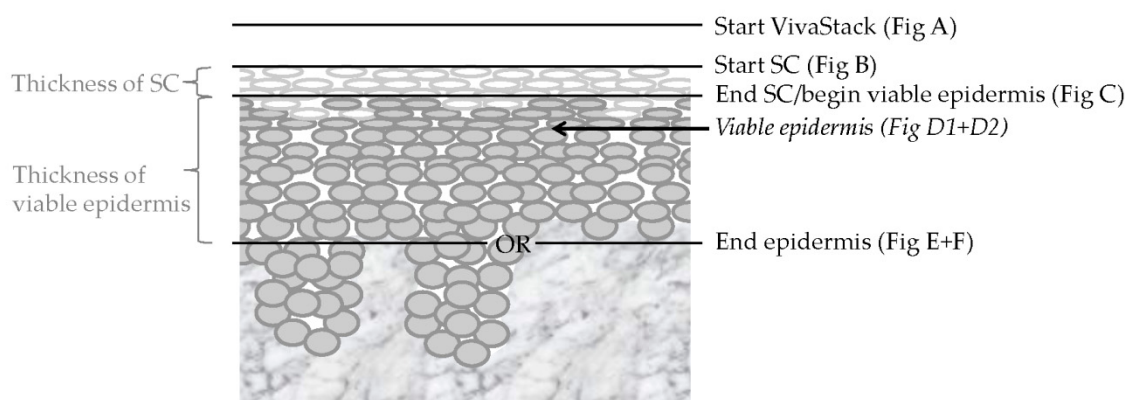


Figure S1. Protocol used for VivaStack evaluation to determine thickness of the stratum corneum (SC) and epidermis with reflectance confocal microscopy (adapted from Ardigo et al. [26]), with examples to distinguish the boundaries between the different skin layers. The central part of the images was used to determine the transition of the different skin layers, to rule out variation in depth (skin layers) within the images. (A) Image acquisition should start above the beginning of the SC; the plastic window is seen as a bright round circle. (B) Beginning of SC, the first image with

bright, highly reflective anuclear cells is visible. (C) The last image with completely bright SC is considered as the end of the SC/begin of viable epidermis. (D1) Part of the viable epidermis with nucleated cells (honeycombed pattern) at center of the image. (D2) Close-up of honeycombed pattern as described in D1. (E) First appearance of the papillary dermis at the center of the image is considered as the end of the epidermis. (F) Disappearance of the honeycombed pattern at the center of the image is also considered as the end of the epidermis.

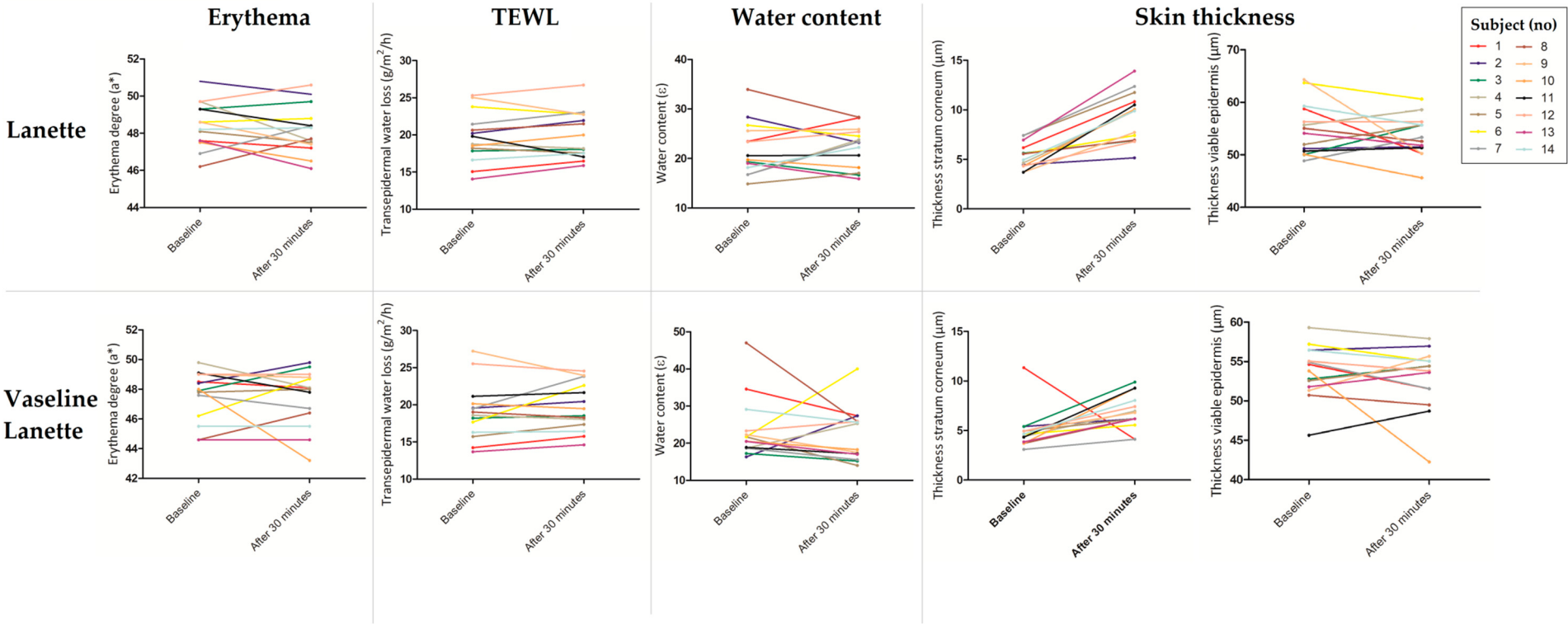


Figure S2. Differences in erythema, transepidermal water loss, water content, and skin thickness between baseline and 30 min after cream application per volunteer.

Table S1. Differences in erythema, transepidermal water loss, water content, and skin thickness between baseline and 30 min after cream application per volunteer.

Subject (no)		Skin Parameter				
		Erythema (a*)	TEWL (g/m²/h)	Water content (ε)	Thickness SC (μm)	Thickness viable epidermis (μm)
Lanette	1	47.60 [‡] / 47.20 [‡]	15.05 / 16.47	23.43 / 28.21	6.18 / 10.83	58.76 / 50.25
	2	50.80 / 50.10	20.20 / 21.94	28.36 / 23.22	4.47 / 5.15	51.19 / 51.55
	3	49.30 / 49.70	17.84 / 18.06	19.34 / 16.63	5.63 / 6.90	50.03 / 55.65
	4	49.70 / 47.60	18.75 / 18.18	16.73 / 23.80	4.64 / 9.89	55.66 / 58.60
	5	48.10 / 47.50	18.21 / 17.56	14.86 / 17.03	7.42 / 11.75	51.96 / 55.66
	6	48.60 / 48.80	23.79 / 22.77	26.71 / 24.51	5.56 / 7.42	63.71 / 60.61
	7	46.90 / 48.40	21.44 / 21.44	16.73 / 23.35	7.42 / 12.37	48.86 / 53.34
	8	46.20 / 47.70	20.65 / 21.49	33.94 / 28.33	5.56 / 6.96	55.05 / 52.57
	9	48.60 / 47.40	25.04 / 22.74	25.58 / 25.89	3.71 / 7.73	64.32 / 50.25
	10	47.50 / 46.50	18.53 / 19.99	19.73 / 18.17	4.33 / 10.05	50.10 / 45.61
	11	49.30 / 48.40	19.81 / 17.04	20.59 / 20.65	3.71 / 10.51	50.72 / 51.34
	12	49.70 / 50.60	25.31 / 26.71	23.37 / 25.38	4.33 / 6.80	56.28 / 56.29
	13	47.60 / 46.10	14.05 / 15.87	19.02 / 15.89	6.96 / 13.92	54.12 / 51.80
	14	48.20 / 48.30	16.62 / 17.53	18.17 / 22.24	4.94 / 9.90	59.29 / 55.66
Vaseline-Lanette	1	48.50 / 48.10	14.23 / 15.76	34.60 / 27.38	11.34 / 4.12	54.63 / 51.54
	2	48.40 / 49.80	19.56 / 20.44	16.31 / 27.38	5.41 / 6.18	56.44 / 56.95
	3	47.90 / 49.50	18.20 / 18.52	17.25 / 15.17	5.41/ 9.90	52.78 / 54.42
	4	49.80 / 48.10	18.59 / 18.04	18.67 / 25.30	4.39 / 6.96	59.31 / 57.91
	5	47.80 / 48.00	15.73 / 17.35	21.72 / 14.03	4.94 / 6.18	52.58 / 54.43
	6	46.20 / 48.70	17.68 / 22.61	21.72 / 40.02	4.64 / 5.56	57.21 / 55.05
	7	47.60 / 46.70	19.48 / 23.83	18.65 / 15.56	3.09 / 4.12	54.89 / 51.54
	8	44.60 / 46.40	19.03 / 18.25	47.02 / 25.87	3.71 / 6.18	50.72 / 49.49
	9	46.40 / 48.80	27.22 / 23.94	22.27 / 17.55	4.95 / 6.80	51.33 / 55.67
	10	48.00 / 43.20	20.14 / 19.47	20.51 / 18.28	3.71 / 9.28	53.81 / 42.26
	11	49.10 / 47.80	21.15 / 21.64	18.87 / 17.16	4.33 / 9.28	45.64 / 48.70
	12	49.00 / 49.00	25.53 / 24.54	23.32 / 25.83	4.94 / 7.42	55.05 / 53.81
	13	44.60 / 44.60	13.67 / 14.61	20.47 / 17.03	3.86 / 6.18	51.80 / 53.61
	14	45.50 / 45.50	16.29 / 16.43	29.10 / 25.61	4.64 / 8.04	56.44 / 55.05

[‡] Baseline.

[‡] 30 min after cream application.