VISUAL PERCEPTION OF PANTYHOSE TEXTURE

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INTRODUCTION

Fabrics are never ideally smooth. Their texture varies between fine and coarse, quantified through the surface's vertical deviation. Fabric roughness, or its opposite smoothness, is employed as measure of the surface texture of fabrics. In general, texture depends upon fibre properties, yarn count, yarn twist, and fabric structure and fabric design. In this paper attention is focused on defining the visual texture of pantyhose, in particular macro roughness and luster, and their interdependence with yarn count and composition.

EXPERIMENTAL

Samples

Sample	Composition	Yarn count [dtex]	
		PA	Additional fibre
1	84 PA6.6/16 Lycra	5.5/3	5.5
2	100 PA6.6	17/3	
3	84 PA6.6/16 Lycra	17/3 F	17
4	100 PA6.6	22/7	17/3 F (trilobal nylon)
5	100 PA6	22/7	
6	89 PA6.6/21 Lycra	22/7	22
7	100 PA6.6	33/10	44/34 (microfiber)
8	85PA6.6/15 Lycra	44/13	44
9	80PA6.6/20 Lycra	78/24	78

Conditions for subjective evaluation
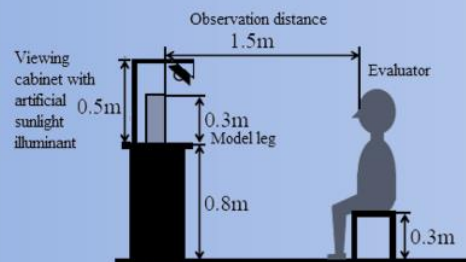
RESULTS

Subjective evaluation of samples roughness

Sample		Roughness		Evenness		Acceptability	
No.	Tt (dtex)	Mean	SD	Mean	SD	Mean	SD
1	5,5 (L)	3.23	1.17	2.68	1.23	3.03	1.10
2	17	2.83	1.08	2.95	1.22	3.63	1.23
3	17(L)	2.80	1.32	2.60	1.22	3.13	1.28
4	22 (T)	3.78	1.07	3.00	1.22	2.40	1.43
5	22	2.78	1.17	2.55	1.13	3.80	1.04
6	22 (L)	3.05	1.34	2.45	1.15	2.53	1.45
7	33 (M)	3.18	1.41	2.30	1.26	3.23	1.35
8	44 (L)	2.23	1.03	2.23	1.10	4.23	0.97
9	78 (L)	2.20	1.04	1.93	1.10	4.30	0.97

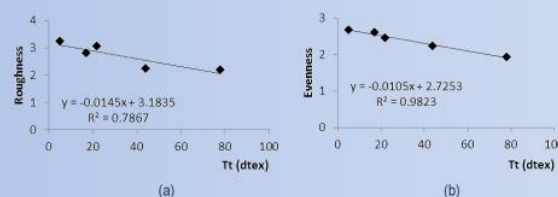L – contains lycra; M – contains microfibre; T – contains trilobal fibre

Figure1. Relationship between yarn count and subjectively evaluated (a) roughness and (b) evenness of fabrics

Subjective evaluation of samples luster

Sample		Luster		Acceptability	
No.	Tt (dtex)	Mean	SD	Mean	SD
1	5,5 (L)	2.63[a]	0.84	3.00	1.01
2	17	3.28[abc]	1.11	3.60	1.22
3	17(L)	3.48[b]	0.96	3.18	1.22
4	22 (T)	1.48[d]	1.04	2.18	1.45
5	22	3.83[b]	0.84	4.05	0.96
6	22 (L)	1.43[d]	0.75	2.25	1.33
7	33 (M)	4.70[e]	0.56	3.48	1.34
8	44 (L)	2.70[ac]	1.07	4.00	1.04
9	78 (L)	3.30[bc]	1.02	4.35	0.95

L – contains lycra; M – contains microfibre; T – contains trilobal fibre

Sample 1 Sample 2 Sample 3
Sample 4 Sample 5 Sample 6
Sample 7 Sample 8 Sample 9

CONCLUSION

Considerable differences in both the perception of luster and roughness were found. The perception of luster depended on the fibre content of the knits. For instance, the addition of microfiber renders the pantyhose with a matte surface, while the addition of trilobal filaments increases luster. Coarser yarns contribute to a smoother and more even surface texture. A Pearson's correlation coefficient of -0.88 and -0.99 signifies a high correlation between yarn count and smoothness and evenness, accordingly.

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References

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