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Stabilization of comfort and visual quality after the insertion of soft contact lenses

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ABSTRACT

Purpose: To evaluate comfort, visual function, and *in vivo* wettability after the insertion of hydrogel and silicone hydrogel contact lenses for a better understanding of how long practitioners should wait for the initial evaluation of soft contact lenses.

Methods: A short-term prospective, contralateral, randomized, and participant-masked study was carried out. Twenty healthy participants (25.4 ± 2.6 years) were evaluated after the insertion of two different soft contact lenses at different times (1, 5, 10, 20, 30 min). Ocufilcon D (hydrogel) and Somofilcon A (silicone hydrogel) contact lenses were randomly assigned to both eyes of the same participant. Comfort, visual function under photopic conditions in terms of high-contrast visual acuity, low-contrast visual acuity, contrast sensitivity, and *in vivo* wettability were measured.

Results: There was an increase in comfort ($p < 0.001$), high-contrast visual acuity ($p < 0.05$), and contrast sensitivity ($p < 0.001$, only with silicone hydrogel) directly related to time after contact lens insertion. Besides, *in vivo* wettability suffered a statistically significant deterioration directly related to time with both contact lenses ($p < 0.05$). Except for comfort and contrast sensitivity, all the parameters stabilized their values 10 min after the insertion of both soft contact lenses. Additionally, *in vivo* wettability and visual acuity differences were found between hydrogel and silicone hydrogel contact lenses ($p < 0.05$).

Conclusions: It would be possible to properly evaluate high-contrast visual acuity, low-contrast visual acuity, and *in vivo* wettability 10 min after the insertion of both soft contact lenses.

1. Introduction

Assessing soft contact lenses properly and informing new users about different aspects such as alternative materials, designs, lens care systems, time of use, among others, during the contact lens fitting process is critical to prevent their dropout [1]. Considering that the contact lens fitting process depends on several factors such as contact lens movement, comfort, visual quality, or reflex tear secretion, only a few studies proposed when the best moment to evaluate soft contact lenses for the first time should be. In terms of movement, different authors showed that soft contact lenses could be assessed 10 min after their insertion [2–4]. Regarding contact lens comfort, there is no clear consensus on when it should be evaluated [4–8]. On the other hand, the lack of scientific evidence does not allow knowing about other parameters such as visual quality or *in vivo* wettability (influenced by reflex tear secretion).

Therefore, the purpose of the current study was to evaluate comfort, visual function, and *in vivo* wettability after the insertion of hydrogel and silicone hydrogel contact lenses for a better understanding of how long practitioners should wait for the initial evaluation of soft contact lenses. This purpose shares the idea of Boychev et al. [4] to develop evidence-based clinical prescribing guidance for contact lens practitioners.

2. Methods

2.1. Design of the study

A short-term prospective, contralateral, randomized, and participant-masked study was performed. The study was conducted in compliance with good clinical practice guidelines, institutional review board regulations and following the tenets of the Declaration of

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Helsinki, reviewed and actualized in 2013 [9]. The study protocol was approved by the ethical committee of the Complutense University of Madrid. All the participants were voluntarily included in the study after reading, understanding, and signing a written informed consent where complications associated with contact lens wear were explained. Participants were free to leave the study at any time. All trials were performed at the University Clinic of Optometry of the Faculty of Optics and Optometry (Universidad Complutense de Madrid, Madrid; Spain).

Comfort, visual function, and *in vivo* wettability were measured at 1, 5, 10, 20, and 30 min after the insertion of two different contact lenses (hydrogel and silicone hydrogel). Both eyes of the participants were evaluated: one eye wearing hydrogel contact lens and another wearing silicone hydrogel contact lens, randomly assigned. The lenses were not inserted simultaneously in both eyes but one after the other on contralateral eyes. In random order for each participant, one eye was evaluated first and, after the last measurement at 30 min, the contact lens was removed, and the contralateral eye was evaluated after 1 h. The order of the measurements was: comfort, *in vivo* wettability, and visual function, which supposed an approximate time of 2 min per eye.

2.2. Participants

Demographic characteristics are detailed in Table 1. Twenty healthy and neophyte participants with no symptoms of ocular dryness were involved in the study.

Inclusion criteria were age between 18 and 35 years, and understanding and signing the informed consent where indications and possible risks of wearing contact lenses were explained. Exclusion criteria were a McMonnies questionnaire score over 14.5 [10], high-contrast visual acuity inferior to 20/20 (superior to 0.00 logMAR), any contra-indication to wear contact lenses, any ocular pathology, and the use of systemic or ocular drugs that could affect the ocular surface.

2.3. Soft contact lens features

Two daily soft contact lenses were used in the study. The hydrogel (Ocufilcon D) contact lens had a spherical design on both anterior and posterior surfaces. The silicone hydrogel (Somofilcon A) contact lens had an aspherical design on its anterior surface and spherical design on the posterior surface. The rest of their technical details are summarized in Table 2.

Before contact lens insertion, the health state of the ocular surface was evaluated with a SL-D4 slit-lamp (Topcon; Tokyo, Japan). Also, all the soft contact lenses were equilibrated for 24 h in saline solution to avoid the comfort bias of the preservative solution of their packaging.

2.4. Comfort

Comfort during soft contact lens wear was evaluated with the visual analogue scale (VAS) [11]. Participants were asked to mark on a line of 10 cm their level of comfort from 0 to 100 (0 the lower comfort and 100 the higher comfort). The mark was measured with a rule. A measurement of 0.1 cm is equivalent to a value of 1 in the VAS.

Table 1
Demographic characteristics of the participants in the study.

Parameter	Value
Participants	20
Groups	2
Eyes per group	20
Age (years ± SD)	25.4 ± 2.6
Age range (min, max) (years)	(23, 32)
Gender (male/female)	4/16

SD: standard deviation, min: minimum, max: maximum.

Table 2
Characteristics of the soft contact lenses used in the study.

Parameter	Soft contact lenses	
Commercial name	Biomedics 1 day Extra	Clarity 1 day
Material (USAN)	Ocufilcon D	Somofilcon A
Material	Hydrogel	Silicone hydrogel
FDA group	Group IV	Group V
Dk/t (at −3.00D)	27	86
Water content (%)	55	56
Base curve (mm)	8.6	8.6
Diameter (mm)	14.2	14.1
Power (D)	−0.50	−0.50

USAN: United States Adopted Names, FDA: Food and Drug Administration, Dk: oxygen permeability.

2.5. Visual function

High-contrast visual acuity, low-contrast visual acuity, and contrast sensitivity were monocularly measured with the spectacle correction under photopic conditions (85 cd/m^2) and physiological pupil diameters. Due to the power of the soft contact lenses (-0.50 D), the measurements were taken with an over-refraction of +0.50 D. All the parameters of visual function were analyzed by using logarithmic units. Visual acuity was measured using the VX24 chart display (Luneau Technology; Chartres, France). High-contrast (100%) and low-contrast (10%) visual acuity were measured using the Early Treatment Diabetic Retinopathy Study (ETDRS) chart at 4 m. Contrast sensitivity was measured using the Pelli-Robson test at 1 m, in which spatial frequency corresponds to 1 cycle per degree.

2.6. In vivo wettability

The dynamic-area videokeratoscopy Medmont E300 (Medmont International Pty Ltd; Victoria, Australia) was used to measure the *in vivo* wettability of the soft contact lens surface. Placido rings are reflected onto the tear film surface and the Medmont software (version 6.2.6) analyses this reflection pattern to generate the corneal topography and the associated parameters. The changes in the tear film surface produce changes in the Placido rings pattern and its orientation, which allows analyzing the tear film quality. Tear film surface quality (TFSQ) is an index that is obtained from the analysis of the distortion of the Placido rings [12]. TFSQ indicates the stability and distribution of the tear film on the contact lens surface: lower values of TFSQ mean would imply a higher wettability of the anterior corneal surface.

A dynamic corneal topography was performed for 20 s (2 frames per second) after two consecutive blinks, obtaining 40 values of the TFSQ index. The parameters analyzed were: TFSQ mean of the 40 values for a corneal diameter of 7 mm, TFSQ area in terms of percentage of corneal area distorted, TFSQ central for a central diameter of 3 mm, and TFSQ inferior for the inferior corneal area between 1.5 and 3.5 mm from the corneal apex. Measurements were taken in a laboratory under uncontrolled environmental conditions: an approximate temperature of 24 °C and humidity of 40%.

2.7. Statistical analysis

Sample size calculations were performed with the statistical software Granmo 6.0 (Institut Municipal d'Investigacion Medica, Barcelona, Spain), considering both high- and low-contrast visual acuities as the main variables. It was accepted an alpha risk of 0.05 and a beta risk of 0.2 in a two-sided test, with twenty eyes in each group being necessary to recognize as statistically significant a difference greater than or equal to 0.04 logMAR. The common standard deviation was assumed to be 0.06 logMAR.

Statistical analysis was performed using SPSS Statistics 22 software (IBM, Chicago, Illinois, USA). The normal distribution of the variables

was assessed using the Shapiro-Wilk test. The differential analysis was performed to test the hypothesis of stabilizing the changes in the values of comfort, visual function, and *in vivo* wettability between the consecutive measurements 1, 5, 10, 20, and 30 min after lens insertion by using the one-way (time) analysis of variance (ANOVA) for related samples with Bonferroni correction. Besides, the differences between the hydrogel and silicone hydrogel contact lenses were assessed with the Student's *t*-test for paired samples (at each time point) and the two-way (lens type and time) ANOVA for related samples. A statistical significance of 95% ($p < 0.05$) was established.

3. Results

Table 3 shows the values of comfort, visual function, and *in vivo* wettability after the insertion of either soft contact lenses.

3.1. Comfort

The statistical comparisons between the different measurements of comfort are summarized in Table 4. With the hydrogel contact lens, there was only a statistically significant increase at 5 min compared with the initial measurement ($p < 0.001$), and comfort remained stable during the following 25 min. The comfort with the silicone hydrogel contact lens increased up to 20 min ($p < 0.05$) when it stabilized since there were no between the measurements at 20 min and 30 min ($p \geq 0.158$). The ANOVA for a single factor (time) showed statistically significant differences ($p < 0.05$) in comfort for both soft contact lenses.

Table 3
Values of comfort, visual function, and *in vivo* wettability after soft contact lens insertion at different times (1, 5, 10, 20, and 30 min). Results are shown as mean ± SD.

Parameter	Lens	1 min	5 min	10 min	20 min	30 min
Comfort (VAS)	Hy	56.67 ± 30.88	73.73 ± 23.48	75.93 ± 23.63	78.13 ± 23.07	80.27 ± 23.07
	Si-Hy	58.73 ± 30.11	75.80 ± 18.54	80.60 ± 15.07	84.33 ± 15.00	86.33 ± 14.30
HC CDVA (logMAR)	Hy	−0.12 ± 0.17	−0.18 ± 0.14	−0.22 ± 0.03	−0.22 ± 0.05	−0.23 ± 0.04
	Si-Hy	−0.15 ± 0.07	−0.19 ± 0.05	−0.14 ± 0.09	−0.18 ± 0.08	−0.20 ± 0.05
LC CDVA (logMAR)	Hy	0.15 ± 0.13	0.09 ± 0.05	0.09 ± 0.07	0.05 ± 0.05	0.08 ± 0.09
	Si-Hy	0.16 ± 0.07	0.12 ± 0.10	0.14 ± 0.06	0.11 ± 0.06	0.12 ± 0.10
CS (log)	Hy	2.01 ± 0.34	1.99 ± 0.38	1.97 ± 0.35	2.04 ± 0.36	2.08 ± 0.35
	Si-Hy	1.88 ± 0.43	1.97 ± 0.37	1.93 ± 0.38	1.99 ± 0.38	2.08 ± 0.35
TFSQ mean	Hy	0.23 ± 0.19	0.28 ± 0.16	0.40 ± 0.15	0.36 ± 0.18	0.39 ± 0.23
	Si-Hy	0.30 ± 0.25	0.46 ± 0.23	0.43 ± 0.22	0.46 ± 0.18	0.46 ± 0.19
TFSQ area (%)	Hy	20.61 ± 20.48	23.25 ± 13.34	37.73 ± 15.83	32.84 ± 18.32	34.31 ± 23.64
	Si-Hy	24.90 ± 20.82	41.73 ± 19.12	38.41 ± 21.73	42.82 ± 20.97	45.90 ± 18.35
TFSQ central	Hy	0.13 ± 0.16	0.17 ± 0.14	0.27 ± 0.17	0.24 ± 0.15	0.36 ± 0.19
	Si-Hy	0.25 ± 0.22	0.35 ± 0.23	0.34 ± 0.21	0.37 ± 0.17	0.34 ± 0.22
TFSQ inferior	Hy	0.21 ± 0.18	0.36 ± 0.22	0.45 ± 0.27	0.44 ± 0.19	0.50 ± 0.25
	Si-Hy	0.43 ± 0.32	0.57 ± 0.24	0.53 ± 0.29	0.59 ± 0.23	0.53 ± 0.29

VAS: visual analogue scale, HC CDVA: high-contrast corrected distance visual acuity, LC CDVA: low-contrast corrected distance visual acuity, CS: contrast sensitivity, TFSQ: tear film surface quality, Hy: hydrogel, Si-Hy: silicone hydrogel.

3.2. Visual function

Table 4 also shows the statistical comparisons of visual function. With the hydrogel contact lens, there were no statistically significant differences ($p \geq 0.05$) during the 30 min of evaluation in the high-contrast visual acuity, low-contrast visual acuity, and contrast sensitivity.

With the silicone hydrogel contact lens, there was a statistically significant improvement ($p < 0.05$) of up to 10 min and 5 min for high- and low-contrast visual acuity, respectively. Besides, the contrast sensitivity remained stable during the first 20 min but improved at 30 min compared with the measurement at 20 min ($p = 0.046$).

The ANOVA for a single factor (time) showed statistically significant differences ($p < 0.05$) in all the parameters of the visual function for both soft contact lenses, except in low-contrast for both lenses and contrast sensitivity for hydrogel contact lens.

3.3. In vivo wettability

The statistical comparisons between the different measurements of TFSQ parameters are summarized in Table 4. In terms of TFSQ mean and TFSQ area, there was a statistically significant increase ($p < 0.05$) at 10 min and 5 min compared with their previous measurements for the hydrogel and silicone hydrogel contact lenses, respectively.

In terms of TFSQ central and TFSQ inferior, both soft contact lenses showed a statistically significant increase ($p < 0.05$) at 5 min compared with the initial measurement (1 min). However, with the hydrogel contact lens, both parameters also showed an increase at 30 min compared with their previous measurements at 20 min ($p < 0.05$).

The ANOVA for a single factor (time) showed statistically significant differences ($p < 0.05$) in all the TFSQ parameters, except in TFSQ central and TFSQ inferior for silicone hydrogel contact lens.

3.4. Comparison between materials

Table 5 shows the statistical differences in all the parameters between hydrogel and silicone hydrogel contact lenses. The high-contrast visual acuity was statistically higher ($p < 0.05$) with the hydrogel contact lens at 10, 20, and 30 min after lens insertion. Also, low-contrast visual acuity was statistically higher ($p < 0.05$) with hydrogel at 10, and 20 min after lens insertion. Contrast sensitivity and comfort did not show statistical differences between both contact lens materials.

The TFSQ mean was statistically higher ($p < 0.05$) with the silicone hydrogel contact lens at 5, and 20 min after lens insertion. The same results were found in the TFSQ area, except at 20 min after lens insertion where there were no statistical differences. TFSQ central and TFSQ inferior were statistically higher ($p < 0.05$) with silicone hydrogel contact lens for the first 20 min, except in TFSQ inferior at 10 min after lens insertion where there were no statistical differences.

The ANOVA for two factors (lens type and time) showed statistically significant differences ($p < 0.05$) in high-contrast visual acuity, TFSQ area, TFSQ central, and TFSQ inferior.

4. Discussion

In the current study, it was reported the stabilization of comfort, visual function, and *in vivo* wettability (TFSQ parameters) with hydrogel and silicone hydrogel contact lenses during the first 30 min of wear.

Comfort was directly related to time with both soft contact lenses. The visual analogue scale score increased with each measurement up to 5 min and 20 min after hydrogel and silicone hydrogel lens insertion, respectively (see Tables 3 and 4). Even though the comfort was higher with the silicone hydrogel contact lens than the hydrogel contact lens, these differences were not statistically significant between both soft contact lenses at any time (see Table 5). In agreement with these results, different short-term [13–15] and mid-term [16] studies did not report

Table 4
Statistical differences in terms of p-value for comfort, visual function, and *in vivo* wettability with both soft contact lenses. *p < 0.05, **p < 0.01, ***p < 0.001; pairwise comparison between consecutive measurements and ANOVA for a single factor (time).

Parameter	Lens	1 min vs 5 min	5 min vs 10 min	10 min vs 20 min	20 min vs 30 min	ANOVA for a single factor (time)
Comfort (VAS)	Hy	**< 0.001*****	0.291	0.310	0.310	**< 0.001*****
	Si-Hy	**0.001****	**0.005****	**< 0.001*****	0.158	**< 0.001*****
HC CDVA (logMAR)	Hy	0.296	0.260	1.000	0.280	**0.016***
	Si-Hy	**0.008****	**0.018***	0.079	0.066	**< 0.001*****
LC CDVA (logMAR)	Hy	0.153	0.865	0.110	0.432	0.331
	Si-Hy	**0.018***	0.071	0.075	0.605	0.131
CS (log)	Hy	0.328	0.795	0.104	0.164	0.087
	Si-Hy	0.147	0.609	0.111	**0.046***	**< 0.001*****
TFSQ mean	Hy	0.064	**0.006****	0.401	0.486	**< 0.001*****
	Si-Hy	**< 0.001*****	0.438	0.506	0.870	**< 0.001*****
TFSQ area (%)	Hy	0.328	**0.002****	0.147	0.519	**0.025***
	Si-Hy	**< 0.001*****	0.490	0.213	0.341	**< 0.001*****
TFSQ central	Hy	**< 0.001*****	0.051	0.336	**0.002****	**< 0.001*****
	Si-Hy	**< 0.001*****	0.774	0.464	0.416	**0.122**
TFSQ inferior	Hy	**< 0.001*****	0.088	0.404	**0.031***	**< 0.001*****
	Si-Hy	**< 0.001*****	0.399	0.298	0.224	**0.185**

VAS: visual analogue scale, HC CDVA: high-contrast corrected distance visual acuity, LC CDVA: low-contrast corrected distance visual acuity, CS: contrast sensitivity, TFSQ: tear film surface quality, Hy: hydrogel, Si-Hy: silicone hydrogel.

Table 5
Statistical differences in terms of p-value between hydrogel and silicone hydrogel soft contact lenses results. *p < 0.05, **p < 0.01, ***p < 0.001; pairwise comparison and ANOVA for two factors (lens type and time).

Parameter	1 min	5 min	10 min	20 min	30 min	ANOVA for two factors (lens type and time)
Comfort (VAS)	0.794	0.707	0.366	0.222	0.174	0.136
HC CDVA	0.488	0.728	< 0.001***	0.044*	0.047*	0.002**
LC CDVA	0.685	0.375	0.030*	0.009**	0.168	0.442
CS	0.250	0.864	0.722	0.601	0.999	0.643
TFSQ mean	0.196	< 0.001***	0.586	0.049*	0.206	0.053
TFSQ area	0.424	< 0.001***	0.890	0.054	0.058	0.018*
TFSQ central	< 0.001***	< 0.001***	0.022*	< 0.001***	0.882	0.010*
TFSQ inferior	< 0.001***	< 0.001***	0.713	< 0.001***	0.604	0.002**

VAS: visual analogue scale, HC CDVA: high-contrast corrected distance visual acuity, LC CDVA: low-contrast corrected distance visual acuity, CS: contrast sensitivity, TFSQ: tear film surface quality.

differences between the hydrogel and silicone hydrogel contact lens comfort. However, the parameters such as the coefficient of friction that affect this comfort were not the same in both soft contact lenses (see Table 2). Therefore, it is not possible to confirm the difference between both materials in terms of comfort after contact lens insertion. Contrary to the results of the current study, Boychev et al. [4] did not report changes in comfort during the first 20 min after the insertion of hydrogel and silicone hydrogel contact lenses. These differences could be explained considering that the contact lens materials and designs that they used were different.

In vivo wettability was inversely related to time with both soft contact lenses. The surface wettability of the hydrogel contact lens decreased 10 min after its insertion and remained stable for the next 20 min (see Tables 3 and 4). With the silicone hydrogel contact lens, the surface wettability decreased during the first 5 min after its insertion and remained stable for the next 25 min. For the first 5 min, the hydrogel contact lens reached more wettability than the silicone hydrogel contact lens, while the ANOVA for two factors evidenced these differences over time (see Table 5). These differences between materials could be explained due to the hydrophobic properties of the silicone hydrogel which deteriorates the wettability of its surface more quickly. However, there were no differences between either contact lenses 10 min after their insertion, which could be associated with the stabilization of the reflex tear secretion.

It should be observed that the values of TFSQ inferior were higher than TFSQ central with both soft contact lenses (see Table 3), which indicated that the main area affecting their wettability was the inferior one. It is hypothesized that the inferior area was more dewetted due to it would be more unprotected from environmental factors than the central area because of the superior eyelid protection.

The evaluation of contact lens wettability by corneal topography has been used in both *in vitro* [17] and *in vivo* [18,19] studies. Nevertheless, it remains unclear the relationship between the degree of Placido rings distortion and ocular surface dryness. Some studies reported differences between these objective methods to evaluate ocular surface wettability and subjective ones, such as the tear break-up time [20,21]. Besides, García-Montero et al. [22] found that the repeatability of a commercial topographer for measuring *in vivo* wettability was lower during contact lens wear compared with the bare eye. Despite scientific evidence supporting the evaluation of *in vivo* wettability by corneal topography during soft contact lens wear [18,19,22,23], this technique has limitations that should be explored in future studies. In this sense, a study by Itokawa et al. [24] reported no correlation between the *in vivo* wettability measured by videokeratoscopy (objective) and interferometry (subjective) using two soft contact lenses. Additionally, they showed that the videokeratoscopy showed differences between both contact lenses, while not the interferometry.

The current study showed that comfort was directly related to the time immediately after contact lens insertion, but *in vivo* wettability was inversely related to time after insertion. Regarding this relationship between *in vivo* wettability and comfort with soft contact lenses, Truong et al. [25] found a directly proportional correlation between these parameters 3 and 6 h after silicone hydrogel contact lens insertion. In a retrospective analysis, Guillon et al. [26] found an inversely proportional correlation between NIBUT and ocular surface disease index (OSDI) score. Recently, Vidal-Rohr et al. [27] performed the study with the most appropriate methodology found in the scientific literature. They made a randomized, double-masked, and cross-over clinical trial

for 1 month, where the participants were fitted with two soft contact lenses of the same material (Formofilcon B), design, and parameters, but different surface treatments. The contact lens with the coated surface treatment and a lower coefficient of friction showed higher values of comfort after 1 week and 1 month of wearing. The most accepted hypothesis to explain these results is that a wet surface of the contact lens decreases the coefficient of friction, reducing the eyelid friction with the contact lens surface, which consequently improves comfort [28]. However, they did not find a correlation between the *in vivo* wettability measured with NIBUT and ocular symptoms. Therefore, the reason for a higher comfort with the coated contact lenses seems to be their lower coefficient of friction rather than their higher wettability.

Concerning visual function, the improvement in high-contrast visual acuity was directly related to time with both soft contact lenses (see Tables 3 and 4). In the case of the hydrogel contact lens, despite high-contrast visual acuity showed no statistical differences between consecutive measurements, it suffered a clinically relevant improvement of 1 line (0.10 logMAR) 10 min after its insertion and remained stable for the next 20 min. With the silicone hydrogel contact lens, this improvement appeared 5 and 10 min after its insertion, but it was not considered clinically relevant (equal or inferior to 0.05 logMAR). The low-contrast visual acuity improved 5 min after the insertion of the silicone hydrogel contact lens and remained stable for the next 25 min. Finally, the contrast sensitivity suffered no changes with the hydrogel contact lens but increased in a clinically relevant way (0.20 log) 30 min after silicone hydrogel contact lens insertion.

The visual function improvement with both soft contact lenses was accompanied by an increase in the TFSQ central values. In this sense, the worsening of the anterior surface wettability would induce light scattering and higher-order aberrations that would not be in accordance with the visual function improvement found [29,30]. However, it should be noted that vision also involves a neural component and the loss of optical quality might not have been enough to affect visual function [31]. Additionally, subjects were allowed to blink during visual function measurement, while *in vivo* wettability was measured at suppressed blinking. All these factors would not allow the relationship between visual quality and wettability to be clearly established. In order to evaluate both parameters simultaneously during contact lens wear, Kolbe et al. [32] recently modified a commercial topographer to analyze the relationship of dewetting time and area with the subject's visual acuity loss after blinking.

The main limitation of the study was that it was performed under laboratory conditions instead of normal clinical practice conditions. Another limitation is that, as mentioned in the methods section, all the lenses fitted had a spherical power of −0.50 D, so the previous refraction of the participants was not considered. Besides, all contact lenses were soaked in saline solution before its insertion to homogenize the initial conditions, these conditions not being habitual in the clinical practice since they usually are inserted from their blister. Therefore, more clinical studies copying the clinical conditions and comparing other materials and properties should be performed to confirm the results obtained in the current study. It should be considered that only two materials (Ocufilcon D and Somofilcon A) were evaluated. Thus, the implications of these results should not be extrapolated to other polymers. Besides, the outcomes of this experiment might differ from those of an older symptomatic population, likely with a compromised tear film.

This study reports on the idea that initial evaluation of soft contact lenses could be performed approximately 10 min after lens insertion. This idea is reaffirmed by Boychev et al. [4], who found no differences in the soft contact lens movement comparing it to approximately 10 min and 8 h after lens insertion. If this knowledge were applied to clinical practice and research in the contact lens field, time could be saved and the contact lens fitting process would be more effective and successful.

In conclusion, there was an increase in comfort and visual function and a deterioration of *in vivo* wettability directly related to the time after inserting both contact lenses. Additionally, there was a stabilization of these parameters approximately 10 min after their insertion, except in comfort and contrast sensitivity with the silicone hydrogel contact lens that increased up to 20 min and 30 min, respectively. Therefore, it would be possible to properly evaluate high-contrast visual acuity, low-contrast visual acuity, and *in vivo* wettability 10 min after the insertion of both soft contact lenses.

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