

NCC 'GET CONNECTED 2026'

Organization Section: NCC/ BCLA

Poster Abstracts

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Changes in ocular surface temperature induced by daily disposable contact lenses

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Purpose: To investigate ocular surface temperature following the insertion of contact lenses (CLs) made from different materials, and to validate the repeatability of the technique by conducting the study in two sessions separated by one week.

Method: This repeatability study included a total of 30 participants (60 eyes), with a mean age of 21.3 ± 2.6 years (57% female), to assess ocular temperature with and without CLs in two sessions separated by one week. Environmental temperature, humidity, and time of day were controlled. Participants with ocular conditions, previous eye surgery, systemic medication use, or high ametropia were excluded. MyDay (silicone hydrogel) CLs were used in one eye and Proclear 1 Day (hydrogel) in the other, both with a power of -3.00 D. In each session thermographic images were captured at four time points (baseline, 1 min, 10 min, and post-CL removal) using a FLIR C5 camera (Teledyne FLIR, United States).

Results: The temperature of the eye increased by $0.62 \pm 0.19^\circ\text{C}$ at 1 minute ($p=0.014$) and by $1.12 \pm 0.16^\circ\text{C}$ at 10 minutes ($p<0.001$) post-insertion with the silicone hydrogel and remained higher (by $0.61 \pm 0.19^\circ\text{C}$) than baseline when the ocular surface was assessed post-removal with the silicone hydrogel, but did not change significantly from baseline with the hydrogel lens. The inter-week repeatability analysis demonstrated consistency at the baseline and post-CL time points for the silicone hydrogel CLs, but was higher at the 1-minute (by $0.86 \pm 1.45^\circ\text{C}$; $p=0.003$) and 10-minute (by $0.68 \pm 1.24^\circ\text{C}$; $p=0.006$) time points with CL wear.

Conclusions: Ocular temperature following CL wear may be influenced by the lens material.

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