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The influence of lens type and power on contact lens handling characteristics

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Purpose: To investigate the influence of lens type and power on contact lens-handling characteristics.

Method: Twenty existing contact lens wearers participated in a subject-masked, randomised, clinical study. In a single session, each subject applied and removed 12 daily disposable lenses (4 lens types: etafilcon / somofilcon / stenfilcon / delefilcon, each in 3 powers: +5.00DS / -0.50DS / -5.00DS). The contact lens application and removal process was assessed using 0-100 visual analogue scales. Lens removal was also assessed after 6 hours of lens wear. Subjects were asked to rank lenses in order of handling preference, for both lens application and removal.

Results: The following 0-100 VAS properties differed between lens types: lens application ($p=0.009$; etafilcon < other lens types) and ease of lens removal ($p<0.0001$; delefilcon < other lens types). The following 0-100 VAS properties differed between the lens powers: lens handling ($p<0.0001$; +5.00DS < other lens powers), lens application ($p<0.0001$; +5.00DS < other lens powers) and ease of lens removal ($p=0.001$; +5.00DS < other lens powers). Subjective ranking of lenses showed no difference between lens types for lens application ($p=0.76$), but differences for lens removal ($p=0.0004$), with the three other lens types favoured over the delefilcon lens type.

Conclusions: The moderate plus lens power generally had a negative impact on a range of handling properties, which also varied with lens type. Issues around contact lens handling are key reason for discontinuation, especially in the early stages of wear, and overall this area has received very little research attention. It is hoped that these new data will highlight the importance of handling as an issue which is important to contact lens wearers, and specifically to inform practitioners of potential differences in the handling characteristics of lenses of different brands and powers.

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