

NCC 'FUTURE GENERATION 2024' POSTER Abstracts
SCIENTIFIC SESSION IN COOPERATION WITH THE BCLA

NCC 'Future generation 2024'

Organization Section: NCC/ BCLA

POSTER Abstracts

Monday, March 11, 2024

Netherlands, Veldhoven,

NH De Koningshof, Baroniezaal

Foveal and parafoveal visual acuities and refractions with distance single-vision spectacles and extended depth of focus contact lenses in a non-presb

Jesús Carballo-Alvarez, Nelia Lolo-Ballesteros, Biying Lin, Mercedes Burgos-Martinez, Alicia Ruiz-Pomeda

Purpose: To measure and compare both foveal and parafoveal visual acuities (VA) and foveal and parafoveal refractions, obtained with distance single-vision spectacles and extended depth of focus soft contact lenses.

Method: An experimental, prospective study was conducted, evaluating 20 right eyes of healthy myopic Caucasian subjects between 18-30 years. LogMAR high contrast VA was assessed with ETDRS test at 4 m. Central VA at the point of fixation and at 2.5°, 5°, 7.5°, and 10° were measured at 1 meter in the temporal field with an exposure of 160ms, with Acuity-Plus test (AVOT Vision, London, UK). Measurements were taken using patients' subjective refraction in a trial frame, as well as the extended depth of focus contact lenses. Refraction and peripheral refraction were measured using an open-field autorefractor SRW-500 (Shin-Nippon, Japan) and a curved fixation arc, both nasally (+2.5°, +5°, +7.5°, and +10°) and temporally (-2.5°, -5°, -7.5°, and -10°).

Results: Photopic high-contrast VA with ETDRS resulted in a mean logMAR value of -0.04 ± 0.09 (-0.20, 0.00) with distance single-vision refraction in a trial frame and 0.01 ± 0.10 logMAR (-0.10, 0.10) with extended depth of focus soft contact lenses ($p < 0.05$). Regarding the VA

measured with Acuity-plus test, VA was better with spectacles, close to a line statistically significant different. Differences were not found between the VA obtained with spectacles and contact lenses at any of the rest of locations ($p > 0.05$). A statistically significant decrease in VA was observed at greater distances from the fixation point for both optical corrections ($p < 0.001$) as expected due to the lower cone concentration at greater distances from the fovea. The parafoveal refraction with both optical corrections was symmetrical respect to the point of fixation.

Conclusions: There was no decrease in parafoveal VA up to 10 degrees between glasses and extended depth of focus contact lenses. VA decreased with greater temporal eccentricity (right eye) not influenced by the design of the contact lenses. Foveal VA decreased less than a line in average in the contact lenses. Refractive values obtained with the contact lens showed no asymmetric defocus with respect to the fixation point.

Research funding received: No Research funding.