SOPTI Meeting 2023: Abstracts

The 28th National Conference of the Italian Optometric Association (SOPTI) was held in Rimini on May 7–8, 2023. This year the conference title was "ABC in Optometry" and it was divided into three sessions: ametropias, binocular vision and correction. A *lectio magistralis* in "Clinical uses of fixation disparity testing" was held by Prof. Bruce Evans, Institute of Optometry, London, UK. The abstracts from accepted posters and free papers are presented here.

Development of a psychometric questionnaire about progressive addition lenses adaptation: a preliminary study

Emanuele Alberini,[*] Laura Boccardo

Department of Optics and Optometry, University of Florence, Italy

Correspondence: emanuele.alberini@yahoo.com

Abstract

The purpose of this study was to develop a survey for optometrists and opticians who have experience in prescription, dispensing and supplying progressive addition lenses (PALs), in order to select questions that can later be included in a psychometric questionnaire to measure the degree of patients' adaptation to PALs.

After a bibliographic search and consultation with a panel of experts, an online survey was created using Google Forms. The survey was distributed to opticians and optometrists through Facebook groups and IRSOO (Institute for Research and Studies in Optics and Optometry). The selection of the questions was made based on the score obtained.

According to the professionals interviewed, the most significant activities undertaken by PAL users were walking, using computers and smartphones, and day- and night-driving. The symptoms to investigate were dizziness, distance and near blurred vision, double vision, difficulty perceiving distances, wish to return to the previous spectacles, and anomalous positions and movements of head or eyes. The most interesting general features of the users were age, occupation, ametropia, near addition, and anomalous posture. The psychological aspects to investigate were the need for clear vision at all distances, confidence or insecurity towards the use of PALs, and perfectionism or tolerant attitude. The technical aspects were pantoscopic and wrap angle, back vertex distance, prescription and prescription changes, and prescriber.

In this preliminary phase, we have created two separate questionnaires: one for wearers of PALs, which focuses on quantifying, on a scale from 0 (not at all) to 4 (very much), the comfort when performing certain activities, and on a scale from 0 (never) to 4 (always), the frequency of experiencing certain symptoms of discomfort while wearing PALs; and a technical form for the optician. The two questionnaires will now need to be validated by administering them to a sample of subjects.

Comparison, inter- and intra-operator repeatability of three different subjective phoria tests

Matteo Bagiloni,[1,2*] Alessio Giorgetti,[1,2] Fabio Casalboni,[1,2] Giuseppe Migliori,[1,2] Luciano Parenti[1,2]

[1] Institute of Research and Studies in Optics and Optometry, Vinci, Italy

[2] Department of Optics and Optometry, University of Florence, Italy

[*] Correspondence: matteo10baglioni@gmail.com

Abstract

There are several tests that evaluate phorias. The purpose of this study is to compare three tests widely used in clinical practice to assess if there are clinically significant differences among tests and whether the operator can affect the repeatability.

The sample consisted of 36 participants with normal binocular vision that can be correctly dissociated with every test. The Maddox test, the Facchin test, and subjective cover test were assessed. Each test was performed three times (both for distance and near) on every participant in order to collect enough data to assess short term repeatability and make a statistically valid comparison between the tests. For data analysis repeated measures analysis of variance was used, which allows the comparison of multiple measurements obtained with different tests, instruments and operators. The Maddox test tended to give more esophoric values, subjective cover test provided more exophoric values, and the Facchin test provided intermediate values between the two.

Repeatability among the tests was optimal for distance and near. The only statistically significant (but not clinically significant) difference emerged in inter-operator repeatability of near Maddox test. These results allow us to assert that in clinical practice, the three tests work completely linearly with each other, and therefore, they are interchangeable.

Correlation between digital eye strain and dry eye in remote workers

Luca Lilla,[*] Laura Boccardo

Department of Optics and Optometry, University of Florence, Italy

Correspondence: lucallilla1@stud.unifi.it

Abstract

The purpose of this research is to assess the presence of Computer Vision Syndrome (CVS) and dry eye in remote workers, in relation to the hours spent on the computer, age, gender, and type of correction used.

The sample consisted of 70 participants (40 males, 30 females), with a mean age of 36 years (median 32; *IQR* 26–45; range 18–66). The CSV_Q questionnaire for measuring Computer Vision Syndrome symptoms and the SPEED questionnaire for dry eye symptoms were administered online to a sample of smart working operators.

The average CVS_Q score was 7.6 (median 8; *IQR* 4–10; range 0–18), with 37 subjects affected by CVS. The average SPEED questionnaire score was 6.3 (median 6.5; *IQR* 3–8; range 0-17), with 12 subjects symptomatic for dry eye, 11 of whom were also affected by CVS. There was a positive correlation between the scores of the two questionnaires ($R = 0.638$; $p < 0.05$). The only statistically significant difference found was between the genders, where females had higher scores compared to males on both questionnaires. The data demonstrate a correlation between symptoms of digital fatigue and dry eye. Almost all subjects symptomatic for dry eye were also symptomatic for CVS. However, it cannot be concluded that a subject presenting with

symptoms of digital fatigue must necessarily have a dry eye condition.

The two questionnaires, although correlated, are not interchangeable. The SPEED questionnaire, freely available in Italian, unlike the CVS_Q, cannot be used to diagnose CVS but can be proposed to individuals experiencing digital fatigue to understand if the cause of the symptoms is primarily related to an ocular surface imbalance.

Comparison between monocular and binocular prismatic lenses anteposition in open field test execution

Roberta Cettina Morana

Department of Optics and Optometry, University of Turin, Italy

Correspondence: moranaroberta.11@gmail.com

Abstract

The purpose of the study was to compare the values of fusion vergences, and dissociated and associated phorias obtained by adding prismatic lenses monocularly and binocularly in open field. Also, the possible influence of gender and monocular/binocular performance mode on the tests performed was studied.

Seventy-seven subjects between the ages of 19 and 30 years were examined, of whom 54 were female and 24 were male. Each subject examined was asked to report any use of ophthalmic correction or contact lenses and was then balanced by the Humphriss method. The tests considered were the fusion vergence jump test with Berens' cues, dissociated heterophorias by Thorington's test (modified Maddox test), and associated heterophorias at 6 m by the needle test (from Haase's sequence) and at 40 cm by the Wesson Card. All tests were performed at 6 m and of 40 cm.

The data collected showed significant differences between the tests for fusional vergences, while there were no significant differences for dissociated and associated phorias. Comparing the monocular and binocular test modes, the differences were significant for negative fusion vergences breaking at distance and for positive fusion vergences breaking at near.

The results obtained provide a starting point for subsequent studies and research, given the paucity of data and reference values, as there are studies in the literature comparing the various tests without reference to monocular/binocular modality. At a clinical level, the presence of greater differences in near vergences than in distance vergences appears to be relevant in the assessment of phorias. In fact, the most frequently disturbing phorias are near phorias. Vergence data were detected differently depending on whether they were measured monocularly or binocularly and this would avoid phorias compensation, leading to improvement of the subject's visual comfort.

Epithelial thickness changes during orthokeratology treatment

Rivara Alessio, Frisani Mauro[*]

Institute Benigno Zaccagnini, School of Optics and Optometry, Bologna, Italy

Correspondence: mauro.frisani@unito.it

Abstract

Orthokeratology is a contact lens treatment that involves the use of rigid gas permeable (RGP) lenses with reverse geometry design. They are designed to be worn during sleep to allow the wearer to improve their visual acuity without the use of spectacles or contact lenses. Additionally, orthokeratology is used to control myopia progression. The use of this particular type of contact lens leads to changes in thickness of the corneal epithelium (Qu & Zhou, 2022). The purpose of this research is to analyse variation in epithelial thickness during overnight orthokeratology treatment by comparing thickness before treatment and after 30 nights, centrally, at 6 mm and at 8 mm from the corneal apex.

For this research were enrolled 11 patients (22 eyes), aged between 14 and 62 years with an average spherical equivalent refraction of -2.50 D (range -1.00 to -4.75 D). All participants underwent an eye test, a slit lamp examination to assess the centration and fluorescein pattern of the contact lens, and optical coherence tomography of the anterior segment (CSO MS-39) to measure epithelial thickness before and after the 30th night of treatment. At the follow up, all participants had a visual acuity equal to or greater than 6/6 without the need for any optical correction. Epithelial thickness data were extracted from the tomography: centrally and at four different locations: nasal, temporal, superior and inferior (at both 6 and 8 mm from corneal apex).

From data analysis it was found that central epithelial thickness decreased on average by 7.4 ±3.7μm. At 6 mm eccentricity, epithelium increased in thickness for all locations except in temporally, where no significant change was found. At 8 mm eccentricity, an increase in epithelial thickness was found in the nasal, temporal, and inferior zones, with no significant changes in the superior zone.

During orthokeratology treatment, the corneal epithelial thickness undergoes two different types of changes. In the central zone, the epithelium tends to reduce in thickness, while in the lens reverse zone (6 and 8 mm from corneal apex) it tends to thicken.

References

Qu, D., & Zhou, Y. (2022). Post-Ortho-K corneal epithelium changes in myopic eyes. *Disease Markers*, *2022*.

Case report: High monocular astigmatism compensated using a toric scleral lens

Saverio Sacchitello

Institute of Research and Studies in Optics and Optometry, Vinci, Italy

Correspondence: saverio.sacchitello@libero.it

Abstract

The correction of anisometropia, especially astigmatic anisometropia, can be challenging with spectacles due to adaptation difficulties. Often, contact lenses are the most comfortable and efficient solution for patients. If astigmatism is high, scleral lenses can offer comfort and stable vision.

Mrs GP (51 years old) has scleral and corneal toricity that cause an astigmatism of 5.00 D in her RE (VA 1.0 logMAR). In the LE she has astigmatism of -0.50 D VA (0.04 logMAR). She has never previously used correction, and only now, with presbyopia, she reports blurry near vision, constant fatigue, and headaches.

The first lens fitted (ΔS 100μm; $\oslash$16.80; BC 8.00; SAG 4200μm) had excessive sagittal height that caused the formation of air bubbles and excessive lift at the edge in the steeper meridian. Proceeding by steps, the sagittal height of the lens was progressively reduced, and the sagittal difference between the two meridians was increased. The final lens had the following parameters: ΔS 540μm; $\oslash$15.30 BC 8.30; SAG 3680μm; Sph: +1.43 Cyl: -2.59 Ax: 6 (VA 0.14 logMAR); Optimum Infinite DK 185 (3DLAC, Pa).

In her LE, a frequent replacement soft lens was tried, but this was not tolerated due to insufficient comfort. Therefore, the astigmatism was corrected with spectacles. Presbyopia was managed with a monofocal ophthalmic lens (Add: +1.75). After the initial adaptation, the patient wears only the scleral lens in her right eye throughout the day and has resolved the problems of fatigue and headaches.

In cases of high astigmatism, toricity often extends to the sclera, making the application of scleral lenses more complex. The analysis of the scleral profile can be carried out through the fitting of trial scleral lenses, evaluating the interaction with the sclera, and increasing the sagittal difference until proper fitting is achieved in all meridians.

How long does it take to fit and manage contact lens properly?

Claudia Stratta,[1] Mauro Frisani[2*]

[1] Department of Optics and Optometry, University of Turin, Italy

[2] Lenti a contatto Torino Mauro Frisani, Studio Optometrico e Ottico Comba, Corso Marconi 37, Turino, Italy

* Correspondence: mauro.frisani@unito.it

Abstract

Specialty contact lens (CL) practice is considered fascinating and it is often asked: "How does one start a specialty contact lens practice?". There are numerous factors to consider, and some cannot be properly investigated. The purpose of this research is to investigate the time needed to fit and manage patients with contact lenses in a specialty contact lens practice.

Over a 3-months period, the time dedicated to each patient was registered. 554 activities were measured (85 first fitting, 424 scheduled follow-up, 45 unscheduled follow-up) conducted by two optometrists with different level of experience. The timeframe of each activity was divided into three periods. The first period (t_1), the evaluation, includes history and symptoms, reason for visit, measurement of the anterior segment (using tomography), the conditions of ocular surface lubrication (using a slit lamp and diagnostic dyes), measurement of objective refraction (using ocular aberrometry), and subjective refraction including assessment of binocular vision. The second period (t_2), the communication, includes the communication with the patient, the selection and sharing of the treatment plan, including risks, benefits, and necessary activities involved. The third period (t_3), the instructions, includes insertion of the trial lens, evaluation of the fit (using slit lamp), measurement of visual performance (objective refraction with aberrometer, subjective refraction and binocular balancing), and lens removal and care. An additional period (t_{add}) was measured, dedicated to the repetition of instructions during the appointment for the lens collection.

The average time for t_1 was 10 ±2 minutes (95% CI [9, 11]), for t_2 10 ±6 min (95% CI [9, 12]), for t_3 13 ±3 min (95% CI [12, 14]), and for t_{add} 22 ±19 min (95% CI [18, 26]). The average total time for each patient was 56 ±23 min (95% CI [51, 61]; minimum 28 and maximum 137). For any follow-up the average time was 8 ±4 min (95% CI [7, 9]). Statistically significant differences were found between the four fitting protocols ($p = 0.001$, ANOVA): soft 48 ±16 min, corneal rigid gas permeable 49 ±18 min, orthokeratology 65 ±24 min and scleral rigid gas permeable 70 ±30 min. No statistically significant difference was found between age groups (group 1: 5–12 years, group 2: 13–18 years, group 3: 19–60 years, group 4: over 60 years).

Effective and safe contact lens practice is based upon experience, expertise, and methodology, as in many other professional activities. Moreover, any activity should be sustainable for both the practitioner and the patient to ensure its continuous delivery. The time devoted to speciality contact lens practice measured in this study serves as reference model for the investment of necessary resources in terms of time and minimum personnel required.