blyogenic in the above mentioned matter. Ingram and coworkers expected an influence of early correction on visual acuity, but they examined the children only up to the age of 3½ years and therefore they were not able to prove this hypothesis. Our data suggest that children should be tested for hypermetropia (and astigmatism) at the age of two years, and hypermetropias of 3 diopters or more should be corrected.

Reference Ingram RM, Arnold PE, Dally S, Lucas J. Results of a randomised trial of treating abnormal hypermetropia from the age of 6 months. Bri J Ophthalmol 1990; 74: 158-159

2 Quantitative visual field assessment of squinting eye under binocular conditions in ten patients with microstrabismus. Preliminary report.

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Introduction It is still not exactly known how strabismic patients perceive the surrounding world. It is commonly believed that patients with early onset convergent strabismus and microstrabismus do not suffer from diplopia because of two mechanisms: suppression and anomalous retinal correspondence (ARC). Suppression only occurs under binocular viewing conditions and concerns the central part of the visual field of the strabismic eye. Suppression is associated with a decrease of binocular functions in the central part of the visual field.[1,2] ARC can be described as a form of internal squint that corrects for the image disparity due to external squint. It is the defence mechanism against diplopia in the more peripheral visual field. There is evidence however that this shift in retinal localisation does not affect the visual field equally. It seems that ARC is more outspoken in the periphery than in the centre of the visual field.[3] This might be explained by the fact that in early childhood the receptive fields are larger in the periphery than in the centre and that during constriction of the receptive fields in the period of early development, suppression is first needed in the centre of the visual field, permitting ARC to develop in the retinal periphery. The first report of visual field analysis under binocular viewing conditions was by Travers in 1938.[4] He found a central and fixation-point scotoma of almost equal size in the squinting eye of esotropes (central scotoma is around the foveola of the strabismic eye; fixation-point scotoma is around the eccentric point of the retina of the strabismic eye, the localisation of which coincides with the foveola of the non-strabismic eye). Harms found in 1938 a large fixation-point scotoma and a small central scotoma using red and green filters.[5] Mackensen[6] found a fixation-point scotoma with polarising filters. Herzau[7] applied many methods of binocular perimetry; he found varying results, using red and green filters and stated that this method is too dissociating to detect the full extent of suppression. He found a large fixation-point scotoma using raster scotometry, which supposedly is less dissociating. Schuy[8] found a relatively shallow fixation-point scotoma using phase difference haploscopy. In the study subject of this paper we placed emphasis on the depth and two-dimensional extent of suppression scotomas.

Patients and methods We tested the monocular and binocular visual fields of ten microstrabismics. These patients were the first ten microstrabismics who visited our orthoptic department and who volunteered to participate in the study. All ten fitted Lang's definition of microstrabismus,[9] *i.e.*, strabismus convergens with an objective angle of less than 5 degrees and anomalous retinal correspondence. Patients had either central or partial suppression of the squinting eye with Bagolini's striated glasses. Patients had reduced stereopsis with no random dot stereopsis (TNO-test) and in the majority only the Titmus fly was positive. Visual acuity of the strabismic eye ranged from 0.1 to 1.0, depending on the success of occlusion therapy. Two patients were anisohypermetropic, with refractive difference between the eyes of 2.5 and 5.0 D of spherical equivalent. The group consisted of eight male and two female subjects. The average age was 31 years.

The test set-up consisted of two modified Friedmann visual field analysers on which identical pictures were attached of pinguins in a polar landscape with a blue fixation dot in the centre. The original Friedmann holes where stimuli were presented, were also made in the pictures. Conventionally, with the Friedmann field analyser two, three or four light stimuli are presented in different parts of the visual field and the patient is asked which he sees. The field analysers were facing each other with two surface-silvered mirrors in the centre positioned at an angle of approximately 45 degrees toward the centre of the Friedmann screens and positioned approximately 90 degrees relative to each other. The patient sat with his head in the chin-rest with his face perpendicular to the surfaces of the Friedmann perimeters. The patient was asked to tilt the mirrors in such a way that both perimeter surfaces were fused, *i.e.*, that the subjective angle of squint was compensated. With help of the mirrors the patients could fusionate both Friedmann screens peripherally. The size of the fusional field was 15 degrees in diameter. On monocular cover-testing of the nonstrabismic eye a movement occurred that approximately equalled the angle of ARC. We substituted the flash light in the Friedmann perimeters by a halogen light that had an approximately triangularly shaped increase and decrease level of luminance. Both increase and decrease lasted approximately 0.3 sec.. The room lights were lowered such that the main luminance of the screens was 5 Asb. A standard test session would consist of testing of each eye monocularly, with the other eye occluded, followed by a test run where we would randomly alternate showing stimuli with each perimeter with both eyes open and fusionating the surface pictures.

Results In four patients we found a significant reduction in sensitivity in the centre of the visual field under binocular viewing conditions as compared to sensitivity under monocular viewing conditions. The results in six other cases were inconsistent; they did not show a reduction of sensitivity during binocular testing as compared to monocular conditions. The former group of four had a relative suppression scotoma for the deviating eye under binocular viewing conditions ranging from 10 to 30 degrees in diameter and from 6 to 18 dB in depth. These scotomas were circular in shape and localised around the fixation point of the squinting eye. The fovea of the squinting eye was localised on the temporal edge of the scotoma.

Discussion Why did our method of binocular scotometry yield reproducible and quantitative results? Haploscopic methods using red and green glasses could be too dissociating. Methods using flash stimuli in binocular perimetry are probably also too dissociating to accurately measure suppression. We used a halogen light stimulus that went on and off in a gradual fashion. We chose the duration of our light stimuli based on a study by De Belsunce and Sireteanu.[10] They found that with competing images for both eyes shown less than 0.1 sec a mosaic of the two images will be seen and that in the period from 0.1 to 0.5 sec suppression will be active; if the competing images are shown longer than 0.5 sec rivalry will occur between the eyes. One might object that, strictly speaking, our method was not binocular perimetry, because stimuli were presented to one eye during binocular testing conditions. We agree that it is very important for our method that patients look binocularly to both screens while being tested. This was possible with the help of the colourful pictures covering the surface of the Friedmann perimeters, which acted as strong peripheral fusional stimuli. The advantage of this was that under normal viewing conditions, both eyes looked at the same image, thus producing very little or no dissociation between the eyes.

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3 Objective assessment of Vernier acuity. A useful method to detect strabismic amblyopia?

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Background The vast majority of amblyopic cases are due to strabismic amblyopia. The most common method of early strabismic amblyopic detection still is the observation of the strabismus and of the reaction to monocular occlusion.

* Patients displaying alternating eye preference are unlikely to have strabismic amblyopia,
* Monolateral strabismus indicates a high probability of strabismic amblyopia in the squinting eye.
* There is less resistance against occlusion of the amblyopic eye compared to the occlusion of the non amblyopic eye.

This reliable method nevertheless has a major drawback; it demands the correct identification of an existing strabismus. The early diagnosis of strabismic amblyopia however usually lies in the hands of strabismologically untrained staff which may be overburdened in diagnosing strabismus. This is one of the reasons why it has repeatedly been considered to devise methods using other criteria to determine amblyopia.