

ABSTRACTS OF STUDENT PAPERS

N.S.W.

The following are abstracts of research papers by third year orthoptic students at Cumberland College of Health Sciences, N.S.W. Copies of particular papers of interest may be obtained by writing to:

The School of Orthoptics,
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P.O. Box 170.
Lidcombe, N.S.W. 2141. Tel. (02) 646 6444.

ANALYSIS OF THE AC/A RATIO IN A SAMPLE OF INTERMITTENT EXOTROPIES OF DIVERGENCE EXCESS TYPE—*Carolyn Smith*

Literature proposes that many of the patients diagnosed as intermittent exotropes of divergence excess are, in fact, simulated forms of this condition. It is suggested that some of these patients control an equally large near deviation by excessive accommodative convergence and possess a high AC/A ratio. In order to investigate the type of AC/A ratio present amongst a sample of seventeen intermittent exotropes of divergence excess the AC/A ratio was calculated by the gradient method at 1/3 m using +3.00 DS lenses. An equivalent normal sample was also investigated. When comparing the two groups the intermittent exotropic sample had a significantly greater proportion of high AC/A subjects. Disclosure of a high AC/A ratio is valuable when considering orthoptic and surgical management of the intermittent exotrope of divergence excess.

A COMPARATIVE STUDY OF BIMEDIAL RECTUS RESECTION AND RESECTION-RESECTION PROCEDURES IN EARLY ONSET ESOTROPIA—*Poppy Mitropoulos*

The bimedial rectus recession procedure was performed on eighteen children with early onset esotropia, and the recession-resection procedure was performed on twenty one children with early onset esotropia. This study assessed the effectiveness of each procedure on reducing the horizontal deviation. Comparison of the two procedures showed the bimedial rectus recession procedure to be more effective than the recession-resection procedure both immediately post-operative, and with the one year follow up period. However, neither procedure was effective enough to align the eyes adequately for functional reasons. Also, in the study, post-operative assessment of inferior oblique over actions, dissociated vertical deviation (DVD), nystagmus and vertical

deviations were assessed even though these were small in number. Gillies theory that vertical deviations, measuring less than four prism dioptres, disappeared with horizontal muscle surgery alone was also considered, however results of this study do not support Gillies theory.

SACCADIC, SMOOTH PURSUIT, OPTOKINETIC NYSTAGMUS DEFECTS OF MIDDLE CEREBRAL ARTERY CVA—*Liane Walker*

Of twenty three middle cerebral artery (MCA) stroke patients at Lidcombe Hospital examined for smooth pursuit, saccadic and optokinetic nystagmus (OKN) defects, eight (34.8%) of patients were found to have such defects.

Common defects presenting were:

1. subtle defects only of saccades to the contralateral side of the MCA lesion.
2. cogwheeling or saccadic pursuit to the same side as the MCA lesion.
3. the response to OKN being defective to the same side as the lesion.
4. a defect of vertical OKN in both elevation and depression.

THE INFLUENCE OF EARLY ONSET ESOTROPIA ON THE DEVELOPMENTAL MILESTONES IN INFANTS—*Sonia Biondi*

Developmental milestones were assessed in twenty-two infants using a questionnaire based on eighteen abilities. The infants assessed were aged between fifteen and thirty-six months. The twenty-two infants were divided into two groups, each comprising eleven subjects. Group 1 comprised the control group and Group 2 comprised infants with an early onset esotropia. Group 1 and Group 2 were compared to a standardised normal group, and it was found that both groups achieved an earlier standard than the standardised normal group, with the strabismic group performing milestones a little earlier than the control group. This may have resulted from parents not wanting their strabismic children to appear delayed.

THE EFFECT OF PRESS-ON PRISMS ON VISUAL FUNCTION—*Jacqueline Spargo*

Fresnel press-on prisms are used widely in orthoptic practice for both diagnosis and management of constant, intermittent and latent strabismus. They have a number of advantages but the main disadvantage is reduction and distortion of vision. 20 normal subjects were tested with respect to visual

acuity and stereoacuity while wearing press-on prisms of various size bilaterally. 10 subjects who were wearing press-on prisms to correct a deviation were asked by questionnaire about the problems encountered related to prisms. Press-on prisms were found to reduce 6 m visual acuity slightly more than near visual acuity and stereoacuity was reduced when worn bilaterally. This reduction was proportional to the prism size. Prism wearers experienced most problems with light reflections off the prisms and judging distances. Symptoms of eye strain were experienced by two subjects wearing prisms bilaterally. Patients should be advised of the problems which may be encountered when wearing press-on prisms.

NEAR VISUAL ACUITY—SINGLE LETTERS VERSUS LINEAR—*Kathryn Mychael*

In this study 40 subjects were assessed—20 orthoptically normal subjects, and 20 amblyopic subjects. The near visual acuity was assessed using linear test-type and single letter test-type. The differences in acuity between methods is observed and discussed. The results show that there is a significant difference between linear and single letter near visual acuity in amblyopic eyes. This is also true of normal eyes, but to a much lesser degree. Reasons for this 'crowding phenomenon' in amblyopic subjects are discussed, and suggestions for the use of this information in diagnosis and treatment are put forward.

THE EFFECT OF ILLUMINATION, AND OTHER VARIABLES ON TNO RESULTS—*Liane Smith*

Twenty two patients, whose ages ranged from seven to seventy-three years, were examined with the TNO stereotest under five different illuminations. The variables of age, visual acuity, convergence near point and illumination on TNO results were assessed and analysed. The results indicate that neither convergence near point, visual acuity or age significantly correlate to TNO stereoacuity levels. Illumination was found to be a statistically significant variable affecting TNO results.

STEREOACUITY WITH INDUCED ANISOMETROPIA—ARE CYLINDRICAL DIFFERENCES MORE SIGNIFICANT THAN SPHERICAL?—*Jannine Shahady*

Anisometropia was induced in twenty normal subjects to assess whether cylinders had a greater effect than spheres on reducing stereoacuity. It was found that spheres (which simulate overall anisometropia) proved more debilitating to stereoacuity than cylinders.

However, results for simulated horizontal astigmatic anisometropia were very similar to those for overall anisometropia. Simulated vertical astigmatic anisometropia was found to be the least disruptive. It is suggested that the reason for this lies in the fact that binocular vision is actually the cortical integration of two horizontally disparate images and, therefore, stereoacuity is perhaps most sensitive to an image that has horizontal blur. Several possible clinical applications are also discussed.

STANDARDISED COLOUR PERIMETRY ON SUBJECTS WITH NORMAL AND CONGENITALLY ABNORMAL COLOUR VISION—*Valerie Tosswill*

Colour perimetry was performed on sixteen subjects—ten with normal colour vision and six with congenitally abnormal colour vision (anomalous trichromatic vision, as determined from Ishihara Plates)—using the Goldmann Perimeter. Four isopters were plotted for each subject using 112e white, 112e red and 114e red targets, all three giving achromatic isopters and the fourth also producing a chromatic isopter. For all fields, those of the colour defect group were smaller than the normals, with their red field falling within the area of maximum cone concentration. The photometrically calibrated 112e white and 114e red targets gave similar achromatic fields in colour normals only, with the chromatic isopters of this group falling well beyond the area of greatest cone concentration. The colour defect group also displayed a significant reduced sensitivity to the introduction of a red filter over the 112e white target.

THE ACCURACY OF NEAR VISION TESTING—*Donna Jones*

Near visual acuity was tested on twenty subjects with equal vision, and eleven subjects with amblyopia. A Reduced Snellen's chart, designed for use at thirty-five centimetres was used and near vision was tested on each subject at the following distances: thirty-three centimetres, thirty-five centimetres and at a distance subjectively chosen, to see whether any difference could be found in acuity at these distances. When subjects with equal vision were tested, no significant difference was found when the testing distance was varied, however, in amblyopic subjects, six subjects showed the same response at each distance, while in four subjects, visual acuity appeared to be of a higher value when tested at the subjectively chosen distance, and lower when tested at thirty-five centimetres. One subject showed a lower visual acuity at the subjectively chosen distance.

VICTORIA

The following is a summary of a research paper by third year OR308 students at the Lincoln Institute of Health Sciences, Victoria. Copies of the paper may be obtained by writing to:
The School of Orthoptics,
Lincoln Institute of Health Sciences,
625 Swanston St.,
Carlton, Vic. 3053.
Tel. (03) 342 0222.

A STUDY OF THE AP DIAMETER IN GLAUCOMATOUS EYES—Carmen Agnew, Margaret Allen, Ellen Boag, Wendy James, Karen Jesse, Geraldine McConaghy, Linda McKenzie, Lin Mulhall, Sandra Penso, Renata Sirotic, Moira Tangney, Kim Windsor

The anteroposterior (AP) diameter of twenty new patients at the RVEEH Glaucoma Investigation and Research Unit (GIRU) was measured by A-scan ultrasonography. The diagnosis and classification of glaucoma in these patients was known prior to the study. This research included all types of glaucoma, in an aim to further study if any significant difference exists between glaucomatous and non-glaucomatous eyes with respect to AP diameter. With the exception of a highly significant correlation in the AP diameter between the right and left eyes, no significant correlations were found.