

THE RESULTS OF VISUAL SCREENING OF 80 MENTALLY RETARDED CHILDREN

Shayne A. Brown, D.O.B.A.
Sydney Eye Hospital.

Abstract

In 1977 and 1978, 80 mentally retarded children were visually screened by an orthoptist. The results showed a high incidence (28%) of strabismus and defective vision (66%).

Key words

Visual screening; mentally, physically handicapped; vision; strabismus.

In N.S.W., vision screening of mentally and physically handicapped children is the responsibility of the N.S.W. Health Commission's School Medical Service. Orthoptists have been employed in the difficult task of assessing handicapped children only in rare instances. In 1977 and 1978, the Orthoptic Department at Sydney Eye Hospital was approached and agreed to screen the children at Bates Drive and Sylvanvale Schools, which are in the southern suburbs of Sydney. Orthoptic help was sought because of the difficulty experienced by the School Medical Service sister when attempting to test these children.

The Bates Drive School is run by the N.S.W. Department of Education and the children range from 5-16 yrs. They are considered to be moderately retarded i.e. the I.Q. level is between 30-55. This school was first visited by an orthoptist in 1977, and each of the 50 children was covered and had their vision tested. In the following year a further 14 children were screened and additional tests were carried out. Thus 64 children, over 2 years were visually screened at Bates Drive.

In 1978 it was suggested that 26 children at Sylvanvale be tested also. This school is privately run by the Handicapped Children's Association. The children's ages range from 4-12yrs. They are considered to be severely retarded, so much so that none had been visually assessed before, as the task appeared impossible.

The causes of the retardation of the 80 children screened are shown in Table 1. (This information was taken from the school's records, which were not always complete, hence the large number of unstated aetiology.)

TABLE 1

| Disability | Number |
|-------------------------|--------|
| Down's Syndrome | 28 |
| Epileptic | 2 |
| Cerebral dysfunction | 1 |
| Microcephalic | 1 |
| Rubinsen Taybi Syndrome | 1 |
| Hurler's Syndrome | 1 |
| Viral encephalitis | 1 |
| Brain damaged | 2 |
| Unknown | 43 |
| TOTAL | 80 |

The tests performed in 1977 were: vision with either the Sheridan Gardiner linear chart, or the Sheridan Gardiner single optotypes or the Catford Oliver Drum, and cover tests. In 1978 the list of tests was extended to include, ocular movements, the Titmus Stereo Test, colour tests with the Ishihara or Matsubaru tests, and 15 Δ prism test for fusion response. All the tests were performed at the school, but not under ideal conditions. The clinic room was not 6m. in length, and as the children could not cope with doing a vision test in a mirror, most of the testing was done in the workshop amid power drills and work benches.

At Sylvanvale the room was long enough to perform 6m. vision tests, but because of the gross retardation of this group of children it was more appropriate to use the Catford Oliver Drum in the majority of cases. Neither colour vision nor the Titmus Stereo Test could be performed by them.

Results

Visual acuity was assessed using the Sheridan Gardiner linear chart, Sheridan Gardiner single optotypes or the Catford Oliver Drum. The test chosen depended on the capacity of the child. Of the 80 children only 14 were non-assessable. The majority were able to manage the Sheridan Gardiner linear test.

| Type of Test | No. of children |
|------------------------------------|-----------------|
| Sheridan Gardiner linear chart | 42 |
| Sheridan Gardiner single optotypes | 7 |
| Catford Oliver Drum | 17 |
| Non-assessable | 14 |

34% had equal vision of 6/9 or better in each eye.

Strabismus was detected in 28% of the children.

Nystagmus was noted in 4 children, and latent nystagmus in 3 children.

| | |
|-----------------------|------|
| Convergent strabismus | = 13 |
| Divergent strabismus | = 7 |
| Vertical strabismus | = 2 |

No additional defects were found by performing an ocular movements test.

Colour vision was attempted on 21 children at Bates Drive. 5 of the 21 who attempted the test gave a positive result. The other 16 children could not perform the test. Without further investigation, it is not possible to decide whether these results indicate a high incidence of colour vision defects.

The Titmus Stereo Test was attempted on the same 21 children as performed the colour vision test. 15 children were able to perform the test, 6 showed appreciation of depth on the Fly test only, and the remaining 9 had stereo-acuity of better than 400 seconds of arc. It was felt that

some of the children had such difficulty in understanding the test and so it is likely that the results give both false positives and false negatives.

In this group, tested by an orthoptist, there was found a high incidence of reduced vision and strabismus. Many authors Banks (1972, 1974)^{1,2}, Breakey (1955)³, Douglas (1961)⁴, Fantle and

Perlstein (1961)⁵, Gardiner (1967)⁶, and Venables (1967)⁷, have found higher incidence of ocular defects and no doubt with a thorough ophthalmological examination other ocular defects would be diagnosed and causes found for the large percentage with defective vision. It is argued that the treatment of ocular defects such as strabismus or refractive errors do not help in the rehabilitation of handicapped children, but Banks states "that the earlier and better the visual sense functions then the greater the child has of achieving his potential." He also states "that reassurance of parents that their child has normal vision and healthy eyes removed a great deal of worry, and sensible discussion and explanation about children with ocular abnormalities went a long way in helping parents to accept a mentally and visually handicapped child. Such advice and reassurance however can be given only when the developmentally handicapped child has received full ophthalmic and orthoptic examinations."

CONCLUSION

Vision screening is possible and can be accurate if the child is in quiet and familiar surroundings and has a sympathetic and patient examiner. Retesting of vision in particular, may be necessary to ensure that the child's possible poor vision is not simply his inability to perform the vision test. Accurate assessment of ocular motility is also possible if care and time is taken. Although the Titmus Stereo Test was attempted on only a small number of children, indications were that it is difficult for these children to comprehend this test and therefore a more accurate and easier test to administer is the 15 Δ prism placed base out to test for fusion. All children with good vision, without a strabismus and irrespective of mental ability, gave a positive response, even those who had failed on the Titmus Stereo Test. The percentage of defects found was less than that of Banks, but the reason may be because some children with

known defects were not screened. But, it may also be because some defects do not show up on a screening test, which would indicate the need of a full ophthalmological examination for mentally and physically handicapped children.

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