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EARLY DETECTION OF REDUCED VISION IN PRE SCHOOL CHILDREN IN AUSTRALIA — THE OAA PUBLIC RELATIONS CAMPAIGN

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This year has presented the OAA with a number of challenges, not the least of which has been the proposed launch of the Association's public relations campaign.

Over the years we have all commented on the lack of public awareness of our profession despite the high clinical and research standards achieved by our members. As a profession we have been encouraged to address this situation both from within our own ranks and from outside but to date we have not succeeded with this task.

In recent months the OAA Council have discovered that increasing public awareness of orthoptics is more easily proposed than achieved. To make a start the Council appointed a public relations consultant, Mr Mike Lynskey and formulated an OAA Public Relations Committee.

With guidance from Mr Lynskey, it quickly became apparent to all concerned that it was not going to be possible to launch a public relations campaign without having a platform from which to launch it.

Thus, with the agreement of the Council, the Public Relations Committee have decided that the platform will be a nationwide study of the incidence of reduced vision in pre school children aged three years in Australia.

Amblyopia has been recognised for many hundreds of years yet, despite this, no accurate figures are available on the incidence of amblyopia in pre school children in Australia. In the 1989 Australian Census there were 277 000¹

pre school three year old children in this country yet we do not know their visual status.

The first recorded cases of amblyopia stem from the 16th century. In 1713 the first accurate clinical description emerged (from Le Cat²) and it was in 1742 that George Louis Leclerc, Comte de Buffon³ was the first to document full time occlusion treatment for amblyopia.

Partial or part time occlusion in amblyopia treatment was first suggested by Erasmus Darwin,⁴ the physician grandfather of Charles Darwin, in 1801.

In 1833 MacKenzie⁵ recognised that part time occlusion together with close work was more beneficial than full time occlusions alone. Thus the place of accommodation in amblyopia treatment entered the debate.

We now know that the most intractable form of amblyopia is that suffered by congenital unilateral cataract patients, even when they are operated on the first weeks of life. However, the role of accommodation in amblyopia is still not fully understood.

The theories of the optimal form of treatment for amblyopia have changed over the years. For example, in the late 1800's and early 1900's, occlusion therapy fell out of favour with a group of influential ophthalmologists. They felt certain that amblyopia was a congenital defect that would not be affected by occlusion.^{6,7,8,9}

Some authors suggested that occlusion therapy was simply unnecessary torture (Poulard⁸ 1921) while others (Gifford and Bangeter) suggested

that occlusion caused physiological trauma such as stuttering.^{9,10} (In a later publication in 1962 Bangeter¹¹ modified his view).

Amblyopia treatments have included pleoptics, penalisation, red filters and, more recently the Cam stimulator but, occlusion therapy has survived them all. Currently the debate at most conferences is not whether or not to use occlusion but rather whether or not it should be used on a full time basis.

A most recent study by Carolyn Calcutt, the OAA 1992 Patricia Lance Lecturer, has broadened the debate on occlusion yet again.¹³ Her research has demonstrated that in countries where the commencement of education and thus the need for the use of accommodation for sustained periods of time is delayed until the end of the critical period, amblyopia is not likely to develop in infantile esotropes if they are NOT treated.

Our knowledge of physiology and thus our understanding of the basis of amblyopia have been greatly expanded by the work of researchers including Hubel and Wiesel, Ikeda and Blakemore.

Through their work we know that there are changes in the retina, LGN and the visual cortex as a result of deprivation.

However, this knowledge is constantly being challenged. In a publication in 1988, Colin Blakemore¹⁴ clearly demonstrated that shifts in cortical ocular dominance columns sometimes showed no correlation with the degree of amblyopia. He reported that he could find no equivocal reason why a decrease in the area innervated by the deprived eye in layer IVc of the cortex or even the gross shift in the cortical ocular dominance column width should necessarily lead to the decrease in visual acuity found in the amblyopic eye.

Our knowledge of human amblyopia is also continually expanding through the use of new techniques for neurophysiological investigation of visual processing in the brain. Using positron emission tomography (PET), researchers have demonstrated that visual stimulation of eyes with strabismic or anisometric amblyopia induces very low levels of glucose metabolism in the visual cortex compared to levels produced by

non amblyopic eyes.¹⁵ This provides another explanation for the reduction in the processing of visual information from the amblyopic eye.

With the advent of contrast sensitivity assessment and similar methods of assessment of visual function, we have been far better able to investigate and monitor amblyopia on a clinical level in humans.

Thanks to the work of clinicians like Prof Awaya, the OAA Guest Lecturer, and others we now know about the critical period for the development of human vision and of the vital importance of early detection and intervention in the treatment of amblyopia in children in developed countries.^{16,17,18}

Today there is a mountain of literature which shows the effectiveness of occlusion therapy in the treatment of amblyopia. These studies have been subject to rigorous statistical analysis and they have shown without doubt that early intervention with this simple and non invasive therapy, preferably by the age of three, is far more effective than late intervention. By the age of eight amblyopia is virtually an incurable entity leaving the patient with unnecessary loss of vision in one and sometimes both eyes.

With the scientific and medical knowledge that we now have it is totally unacceptable that visual loss should remain undetected in any Australian child until such time as the child is routinely screened at school. By then valuable and irretrievable time for the treatment of amblyopia has been lost.

To convey this message to government, parents and the community as a whole the OAA need statistics. To this end the Public Relations Committee have proposed to Council that the Association embark on a research project encouraging all orthoptists in Australia to test pre school children attending Long Day Care Centres which are administered by the Commonwealth Department of Health, Housing and Community Services. It was considered that these centres should provide a broad socio economic cross section of the Australian population.

The statistics gathered by OAA members will demonstrate the incidence of visual loss, most

of which would otherwise have gone undetected until school age or later.

From this the OAA can lobby the Federal and State Governments to put strategies into place with the aim of early detection and treatment of amblyopia. It is envisaged that, with the help of Mr Lynskey, the research project results will be used to raise media attention to our profession.

To supplement this Orthoptists will also be asked to speak to their local community groups about amblyopia and the need for early intervention.

The committee aims to carry out the project in the first 6 months of 1993. Results will then be available for the beginning of the OAA's 50th anniversary celebrations at next years conference in Hobart. That conference will mark the launch of the public relations campaign.

It is only with media coverage based on sound research that our profession will attract the attention of the public and thus our share of the limited purse of public funds needed for future research and development.

In order for our profession to thrive into the next century we must continue to conduct research and we would be well advised to heed the following quotation from a 9th century philosopher;

"He who does not doubt, does not investigate, and he who does not investigate does not perceive, and he who does not perceive remains in blindness and error".

Al-Ghazali (1058-1111)

However, in 1992 it is not sufficient just to doubt, investigate and perceive, it is equally importantly to increase our public profile through the media and community groups and to this end each and every orthoptist must participate.

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