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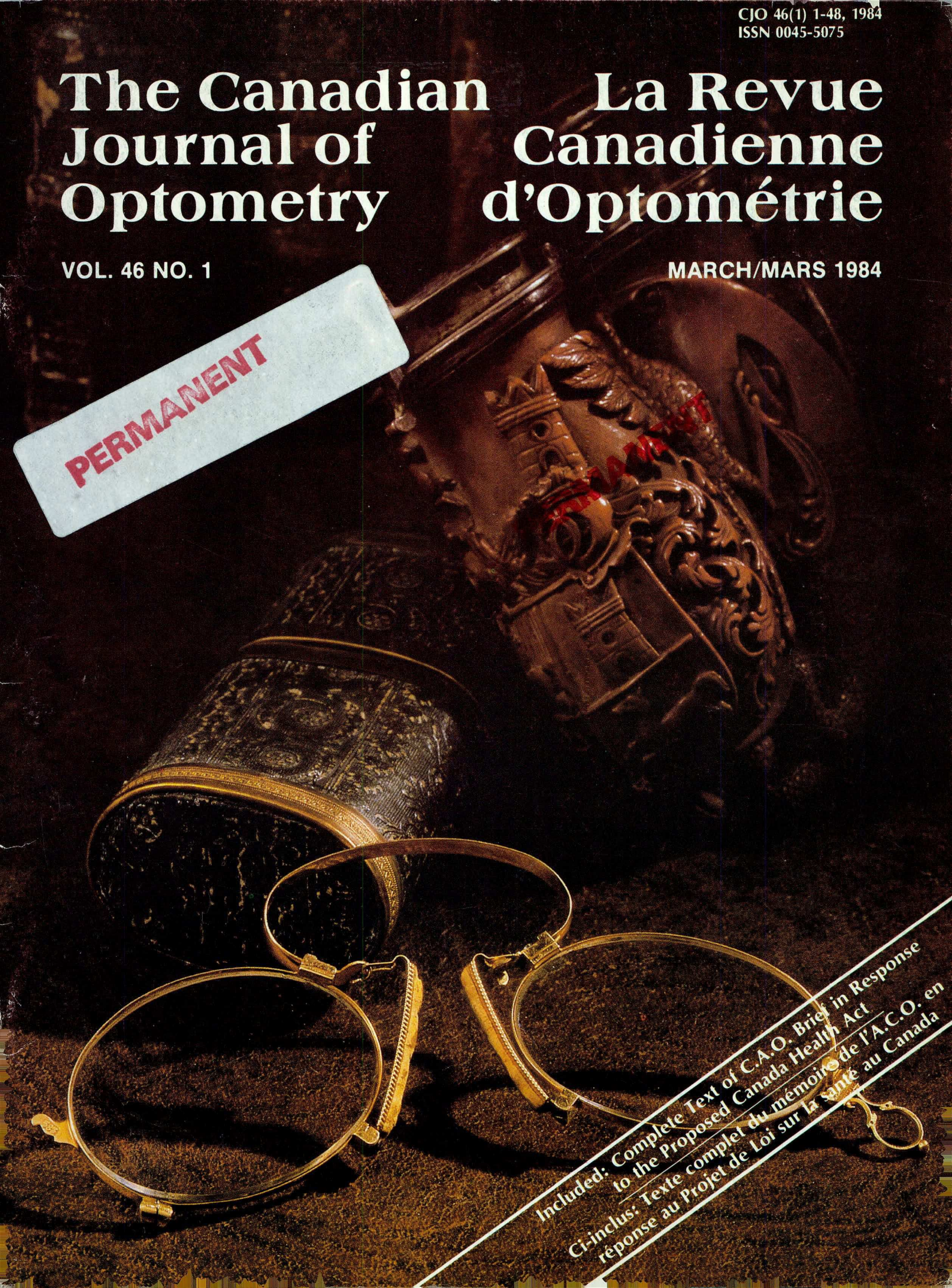

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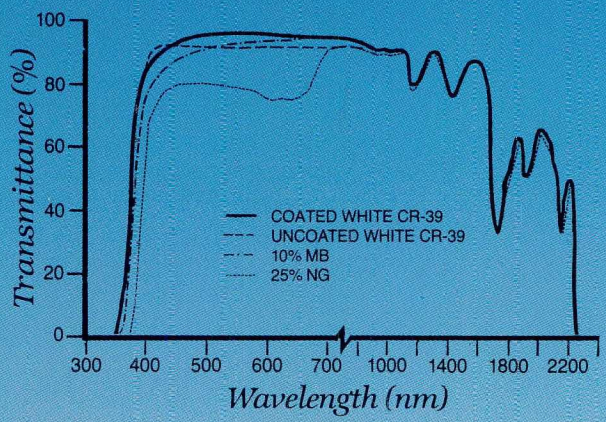

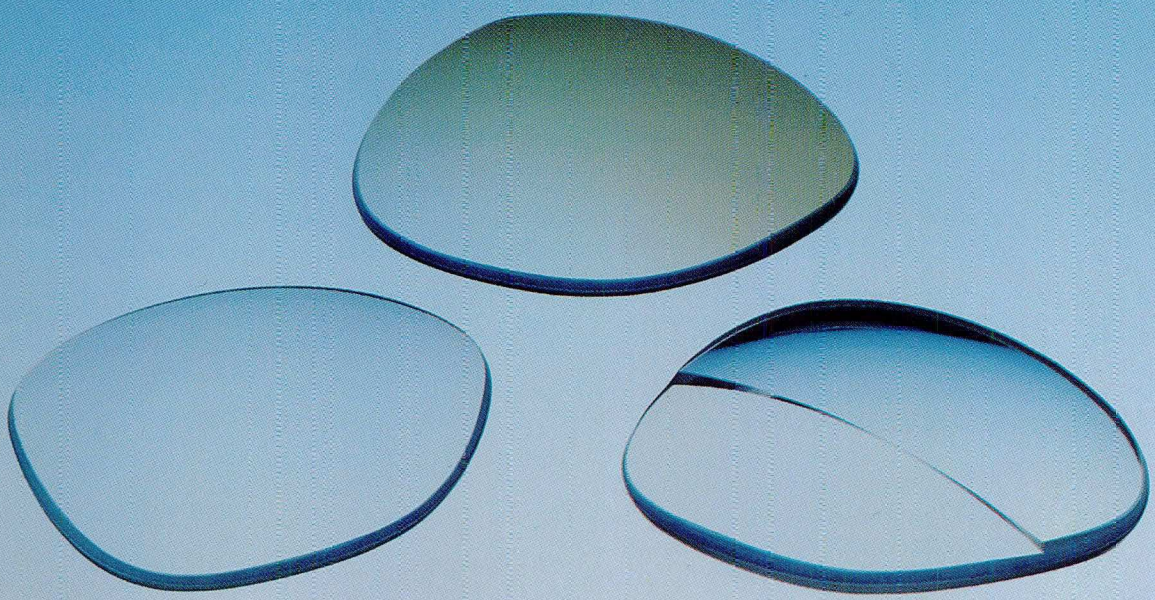

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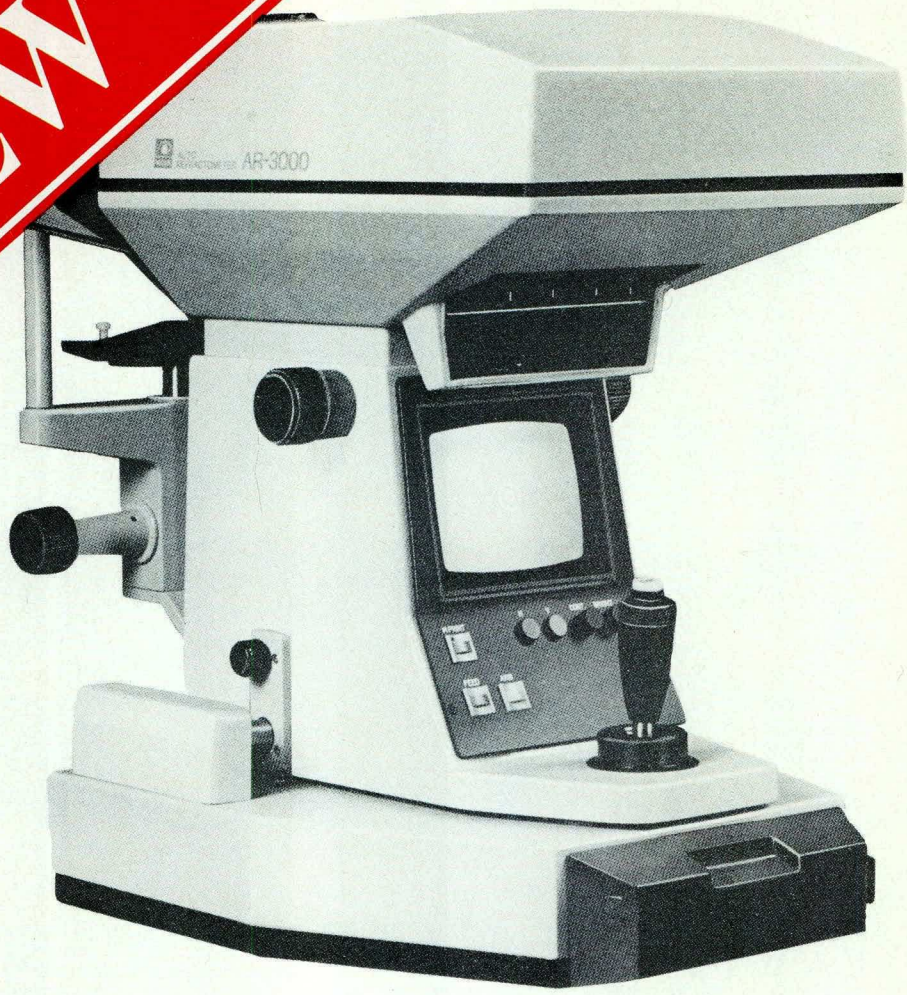

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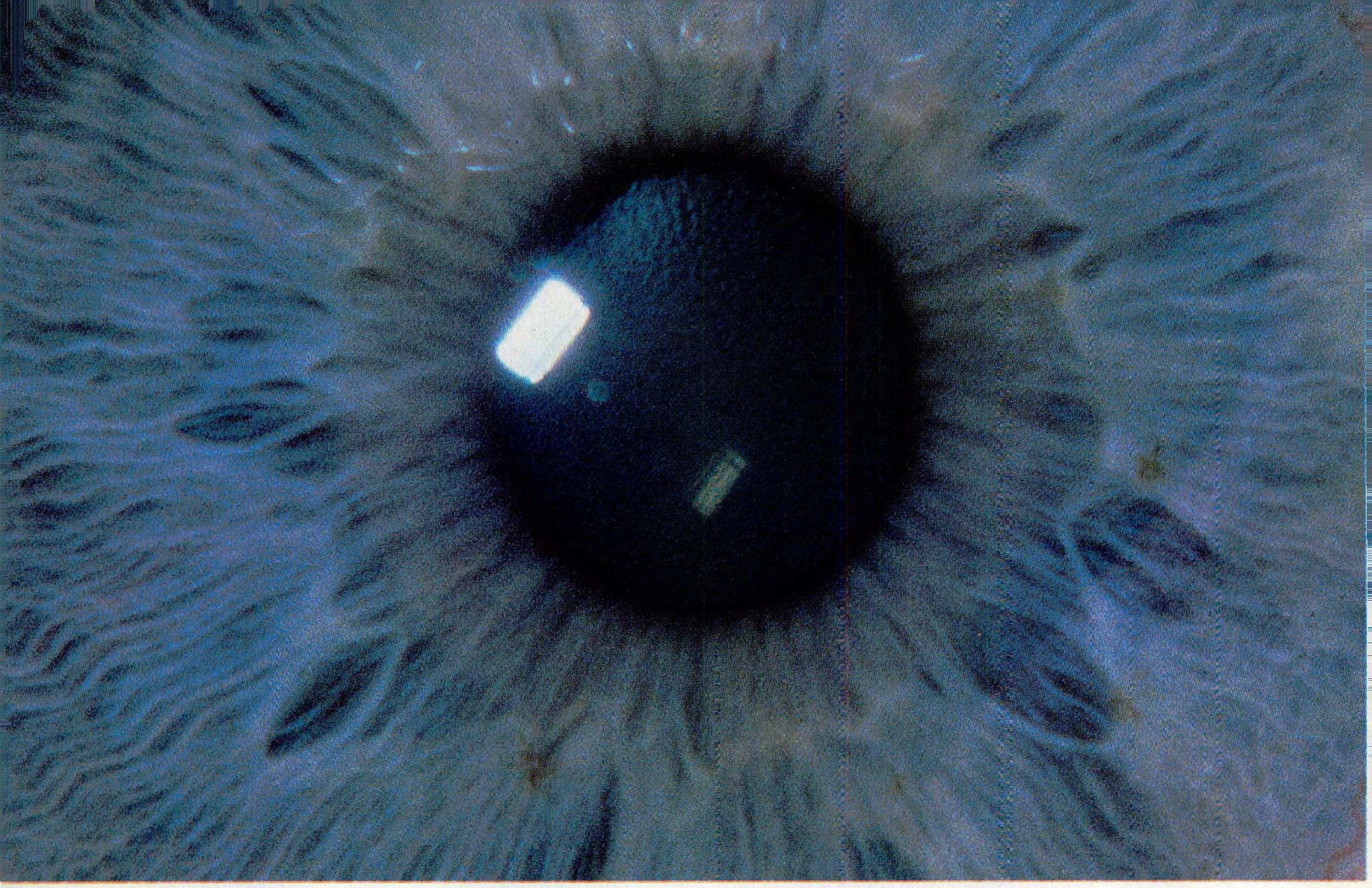

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1. Stein, J.M.: Clinical evaluation of Alcon's Enzyme Cleaner with daily wear soft, hydrophilic contact lenses. June, 1982.
2. Randeri, K.J. et al: A new broad spectrum enzymatic cleaner for contact lenses, Alcon Report Series: 107, Alcon Laboratories, Inc. Fort Worth, Texas 76101, July, 1982.

CANADIAN
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COVER

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EDITORIAL

A Western School of Optometry — The Peat Marwick Report is Not All Bad —

Since the early forties, optometric leaders in the West, particularly from Saskatchewan, have been discussing, and lobbying for, the establishment of a Western School of Optometry. This came to a head in 1944 when a committee of the Saskatchewan Optometric Association prepared and presented a lengthy brief to the President of the University of Saskatchewan in Saskatoon.[1] This brief was most comprehensive and covered the nature and scope of optometry, its history, the evolution of its educational programme, social and economic factors in health care manpower, the need for a school and proposed improvements in the training system. This document is preserved in the archives of the provincial association. Photocopies are being distributed to C.A.O., the optometry museum in Waterloo and the two schools.

Why the proposal was not acted upon at that time is uncertain but the end of the war in 1945 and the great influx of veterans into universities did have some effect. The demand was immediate. The development of a new facility was too long a process to respond to this demand, so the Ontario College expanded to satisfy the influx. At best, this expansion could not be classed as permanent but it did provide a short term solution to the need for optometric services.

The prosperity of the post-war years and the marked increase in population only served to emphasize to optometric leaders the need for improvements in optometric training institutions. The drastic reduction in optometric enrolment in our two schools, more so in Toronto, demanded some long range planning, including the need for adequate public funding to permit upgrading the physical facilities and the hiring of more faculty for teaching and research.

From its founding in 1925 the College of Optometry of Ontario subsisted on student fees, the license fees of Ontario optometrists and donations from individuals and provinces. Between 1946 and 1955 D.V.A. grants for student veterans financed, in part, the expanded activities at the College but these were discontinued with the departure of these large veterans classes. The School in Montreal, although only an affiliated institution, did receive some provincial assistance but hardly enough to say the school was well-to-do.

The survival of optometry was now critical — decreased enrolments, the difficulty of attracting faculty people, the need to carry out research in physiological optics to justify our existence as a separate health care discipline, forced the schools to embark upon campaigns for greater recognition in the form of a university school and public funding. Both schools achieved their objectives of university integration: the Ontario college became the School of Optometry Faculty of Science, University of Waterloo in 1967. The school in Montreal gave up its affiliated status to become fully integrated into the University of Montreal in 1969.

The integration of the two independent schools into their respective provincial university systems brought about increased enrolment, almost doubling the pre-integration rate. But, once again, this was a short term solution and now a crisis again looms as the large classes of veterans from the late forties and early fifties begin to approach retirement age. The average age has risen sharply, despite the increased number of graduates from Waterloo. In Quebec, however, the age has remained low and the majority of practitioners are below the age of 40.

For English Canada the manpower problem, particularly in the Western provinces, has remained. The need for a Western School has never disappeared. Successive C.A.O. councils have given it continued and ever-increasing attention. In 1968, council set up a Western Facilities Committee to investigate the establishment of a School of Optometry in a Western University. Although a great deal has been accomplished in informing political leaders and administrators of the scope and nature of optometry, the benefits to society and to the health care system of a Western School, several obstacles still must be overcome. The first, and most obvious, is the opposition by medicine and ophthalmology who have mounted a nation-wide campaign to show that "ophthalmic technicians,"[2] moulded on the D.N.D. concept, are capable of fulfilling all the functions of an optometrist and

are less expensive to train. What is not mentioned is that these technicians cannot practice as independent people. They must work out of the ophthalmologist's office and, hence, there is lessened distribution and less availability of services.

The four Western provinces, in the past, have consulted and co-operated on educational facilities in order to avoid duplication and so reduce cost. The best example of this "consortium" concept might be the School of Veterinary Medicine in Saskatoon, which serves the four Western provinces who share its costs. The idea of regional educational facilities is a rational approach to education and is receiving more attention, particularly in Western Canada and the Maritimes.

As one would expect, any such decision by an interprovincial body is not made overnight, but taken only after adequate study of cost, priority, need and benefit to society, not to mention manpower studies, particularly in the field of health care.

Irrespective of the nature of a new facility and of a favourable report by such a committee, two conditions must be met. These apply to optometry as well as any other field.

1- a university or province must *want* the new facility and established faculties at the chosen university *must* be agreeable to accepting it.
2- a provincial government or governments must provide the funding for capital, and annual operating grants. An agreement such as was reached in the case of veterinary medicine, or similar to that established for student places at Waterloo, must be determined.

Up to the present time, two approaches have failed because, in one case, funding was lacking. In the other case, established faculties, led by medicine, voted against an optometry school claiming that their already-constrained budgets would be further reduced by an optometry department.

Some four years ago, the four Western provinces commissioned the firm of Peat Marwick and Partners to prepare a report on health training in these provinces. The study was to cover cost, manpower training, public need and demand for services.

The Peat Marwick report has now been made public. Although at first reading it seems unfavourable to optometry, it is not as negative as might first be thought. Among its many recommendations, two are very pertinent to optometry:

1- the report admits the need for more optometrists but suggests that new manpower be obtained from existing institutions in Canada, U.S.A. or overseas.
2- the report recognizes the oversupply of ophthalmologists and recommends a reduction to two residencies per year for the four provinces.

So although the report does not recommend, at this time, a new school of optometry it recognizes two of optometry's most important arguments: the need for more optometrists and the oversupply of ophthalmologists.

The question of a Western School of Optometry reverts once again to the political arena. Finances are the key to the solution. Compared to other health care training facilities, optometry is the *least* expensive. It seems strange that politicians are so apprehensive about funding an optometry school, particularly when students from these provinces must exile themselves to obtain an education in optometry, at much greater cost to themselves, and the provinces, than if they were to attend a Western School.

Governments are more apt to be responsive to our petitions if we demonstrate that our participation is more than vocal. The credibility of the profession must be proven by the provision of some capital grants from the profession and its practitioners. The Canadian Optometric Education Trust Fund is the agency par excellence for the collection of such money. Optometrists across the country must recognize their duty and responsibility in this matter and respond generously. We are far from reaching 100% participation among our membership. We encourage those who have not yet pledged their support to do so without delay. Optometry needs the manpower!

Reference

1- A Paper Concerning and Proposing a College of Optometry at the University of Saskatchewan, presented to the President by the Saskatchewan Optometric Association, Part I, June 1944, Part II, Nov. '44.

2- Perspectives on Health Occupations — A Study of the Canadian Medical Association Committee on Allied Health, July, 1983.

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GUEST EDITORIAL

The Author's Courtesy Galley.

As most of our readers have long known, the production of the C.J.O. is a quarterly operation, occurring in March, June, September and December of each year. What few people are aware of, except those who are intimately involved with this process, are the pre-production aspects. These have recently given the Editors, and the Business Manager, cause for some contemplative moments.

By way of background, here, briefly, is the chronology of the text of a given issue of *The Canadian Journal of Optometry*. An original article, either solicited from a specific author, or submitted unsolicited, is received. It is acknowledged and copies are forwarded to one or two members of a growing pool of C.J.O. referees. These referees are asked to be as thorough and as frank as they wish in their criticisms of the paper. The referee's comments are then returned to the author and, except in the occasional special case, the referee's identity is carefully screened out. (This is common academic practice in the review process.) Once the author has had a chance to evaluate the reviewer's comments, he or she is asked to rework the paper, correcting errors which may have been noted, and evaluating the merits of the "aesthetic" criticisms, as opposed to errors of fact. The article is then re-submitted to the C.J.O. From that point on, it is in the "production" process, along with all other articles slated for that issue.

Until a couple of years ago, it was an unwritten policy of the Journal to provide authors with "courtesy copies" of the article's galleys. (A "galley" is the text of the article, typeset, but not laid out, printed on 14-inch long sheets of paper.) It is, quite honestly, a courtesy which has caused some delay in the past and not a small amount of frustration on the part of the Journal's staff, from the Editor on down. The reason is this: All too often, the author or authors, having viewed the galley, would undertake to make changes in their text, not merely correcting the occasional minor "typo", but making sweeping editorial and content changes which, often as not, produced a substantially different paper. It then fell to the production staff to integrate these changes into the paper in sufficient time to have the reworked paper appear in the issue for which it was planned.

About two years ago, using the same unwritten policy manual which directed that courtesy galleys be forwarded, it was discontinued as a practice. A series of letters was developed, each of which accompanied the article through its pre-production phases and, at the point where the author received the reviewers' comments, he or she also received a letter requesting that he or she be fully satisfied with the paper before re-submitting it to the C.J.O. Once submitted, it would be the final version of the paper. From that point on, i.e. from the acceptance of the revised paper, ensuring the accuracy of the typesetting against the original text became the responsibility of the typesetters, and the C.J.O. staff.

Strangely enough, it is a responsibility we are only too happy to accept, as a part of the process. An error-free page is as much a point of pride to us, as the successful test of an airframe design is to an aircraft designer.

Accordingly, while the provision of a typeset galley has been a courtesy to our contributing authors, we have found it to be occasionally counterproductive in the delays it injects into the production process. As we are now set up, it is a month-long operation to carry an article from raw copy to its place in the finished magazine. That includes our proofing time and all assembly and production processes. It *doesn't* include time to rework sections of submitted papers because an author is happier with a different arrangement of the words, or has found some supplementary research to support his or her thesis.

But there is also a negative side to this unwritten decision not to provide courtesy galleys. Another check has been removed from the process. Proofing is now left to the typesetters who, admittedly, are very thorough in their work, and to the C.J.O. staff, who are every bit as thorough. However, even this double degree of thoroughness is not completely perfect and the appearance of an "Errata" box is a regular event in the Journal. (Of some consolation is

the fact that "We Were Wrong" is a regular box in *The Globe and Mail* which, although published much more frequently than the C.J.O., has significantly more staff, and considerably more sophisticated computerized resources available to it, than do we.)

In addition, it is hard to justify the removal of a courtesy process, once begun, without causing some offence, even a minor one, somewhere along the line.

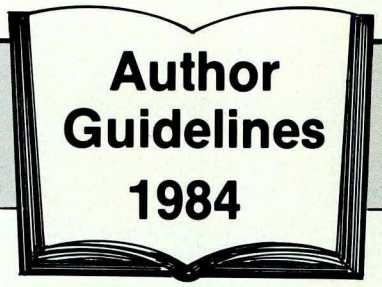
The point in all this is that, as the reader and potential author might suspect, we would like now to discontinue, formally, the process of providing a courtesy galley to the authors of papers submitted to the C.J.O. But we wish not to appear colder and less caring by so doing when, in fact, the reverse is true. Our prime concern is getting the C.J.O. out on time to the 2,000 Canadian optometrists who read it. To delay an issue because an author has not yet returned an approved galley is, to our way of thinking, a greater injury than not to send the galley in the first place. Our first responsibility is to our readers. Very closely behind, but second nonetheless in our concern, are the authors we feature in a given issue.

To provide some idea on what we require in a contributed paper, we have developed a *Guideline for C.J.O. Authors*. We feel that it is the author's responsibility to ensure that a submitted work is complete, up-to-date and presented in a finished format. It is our responsibility to ensure that it is transmitted as such to our readers through the typesetting process. If followed, the *Guideline* will ensure that there is no doubt in our minds as to what is written in a submitted paper, and what is shown in its illustrations.

It is a rare author who will submit unfinished, sloppy work and, to avoid erroneous interpretation, we will not accept it. Even with a courtesy galley, it is difficult to see how this process, if followed, can be bettered.

M.J. DiCola

The Canadian Journal of Optometry



Introduction

The Canadian Journal of Optometry is the official Journal of The Canadian Association of Optometrists. Its primary purpose is to publish articles of a clinical, academic or editorial nature dealing with current aspects of optometric practice, research and development within the vision and eye care branches of the total health care delivery system in Canada.

Contributions are invited in the form of an original case study, research paper, clinical evaluation, editorial comment/opinion, book review or letter to the editor. In the case of major papers or case studies, the paper will be evaluated in terms of its originality, relevance, documentation, clarity and significance to the profession.

Each manuscript submitted to the CJO must be done so on the condition that neither it, nor its essential substance, has been previously published or accepted for publication elsewhere.

Manuscript Submission

Three copies, one of which *must* be the original (including the originals of all illustrative material), must be sent via first class mail to: Dr. G.M. Belanger, Editor, The Canadian Journal of Optometry, Suite 207 - 77 Metcalfe Street, Ottawa, Ontario, K1P 5L6. Please include a cover letter which identifies the person responsible for the article, and includes both a mailing address and a (day) telephone number.

The Review Process

Manuscripts will be examined and acknowledged by the CJO upon receipt. In the CJO review procedure, a manuscript is customarily reviewed by two or more consultants with expertise in the article's subject area. Because the CJO is a quarterly publication, long delays are inevitable between the time of acceptance and an article's publication, usually of at least six months. Once the referee's comments are returned to the CJO, the complete package will be returned to the author, with a request that the article be corrected as required, where a factual error or omission may have occurred. In the more aesthetic commentary, i.e. style or format, it is left to the author to decide whether or not the suggested changes would improve the article. In any case, the amended copy, as re-submitted by the author after revision, *is the copy which will be published.* Any changes requested after the paper has been typeset will be

made only if adequate time is available and will be billed, as Author's Alterations to the author at the rate charged the CJO by the printer.

Abstracts

An abstract of no more than 200 words must accompany each article. Ideally, the abstract should be in both English and French, but the CJO editors will provide a translation if none is included. The abstract must be factual, not editorial, and include the article's main findings and conclusions.

Tables and Illustrations

Tables and illustrations should be clear, self-explanatory and should support, not duplicate, material contained in the text. Tabulated data must be clearly organized in chart or column form as required. Each table is also to be clearly identified by either a number or a caption. Figures should be professionally drawn and/or photographed. Sharply contrasted line drawings, or black and white photographs are requested. A photocopy is *rarely* acceptable as an original illustration. Reduction compensation, i.e. the text legibility when the illustration is reduced to the CJO column width of approximately 9 cm, must be taken into account when preparing original illustrative material. *All* figures and photographs must be clearly labelled with the author's name and key word(s) from the article's title, Figure number, and with the **Top** of the photograph or figure clearly indicated. It should be noted that CJO policy excludes the printing of photographs in colour unless the cost of colour separation and extra printing charges are assumed, by advance written agreement, by the author.

Manuscript Preparation

Manuscripts must be typewritten, double-spaced, on one side of white, 8½ x 11 paper, with margins of at least 1¼ inches. Where possible, neither a paragraph nor a sentence should be broken at the end of a page. Pages are to be numbered consecutively.

Style

All standard abbreviations, units of measurement and acronyms, e.g. VDT, OHIP, are acceptable. Uncommon abbreviations and/or acronyms should, in the first instance of use, be preceded by the full name for which it stands. For drugs and other products, generic names should be used. Proprietary or trade names may be indicated parenthetically. Numbers one through ten should be spelled out and units of measurement should be in SI format (Système Internationale).

The CJO assumes no responsibility for manuscripts lost in either the original or subsequent mailings to and from the author(s) or the referee(s). The principle author should retain a complete copy of the submission prior to mailing it to the CJO. All original material becomes the property of the CJO upon submission and will be returned to the author(s) only if requested in writing no later than 60 days after publication. For first-time authors, a sample copy of the CJO will be provided upon receipt of a written request for same. Telephone questions and comments are invited, and should be directed to the Business Manager, CJO, (613) 238-2006.

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Ophthalmic Preparations of Interest to Optometrists

W.M. Lyle*

Editor's Note:

This paper is essentially a tabulated listing of nearly 200 ophthalmic preparations. It is too lengthy to publish in one issue of the CJO, so it will be presented in parts. The subject is tabulated in the following sections:

- **Tear Supplements and Substitutes, Comfort Solutions.**
- **Vasoconstrictors, Decongestants, Astringents and Antihistamines.**
- **Topical Antibiotic, or other Antibacterial Preparations.**
- **Mydriatics / Cycloplaegics or both.**
- **Ophthalmic Ointments.**
- **Enzymatic Cleaners, Proteases and Lipases.**
- **Thermal Disinfection and Rinsing of Soft Lenses, Storage Solutions.**
- **Chemical Cleaning and Disinfecting Solutions or Systems for Soft Lenses.**
- **Solutions Designed for Use With Hard Lenses.**
- **Solutions Designed for Use With Hard Gas-Permeable Lenses.**
- **Diagnostic Aids.**
- **Ocular Lubricants, Eyewashes, Irrigating Solutions, Cushioning Solutions or Ointments.**
- **Topical Anaesthetics.**
- **Hypertonic Solutions or Ointments.**
- **Drugs to Treat Glaucoma.**

Readers will also note that some preparations will appear under more than one of the above descriptive headings.

*Optometrist, M.S., Ph.D.,
Member of Faculty, F.A.A.O.
School of Optometry, University of Waterloo

1. Tear Supplements and Substitutes, Comfort Solutions

Product (Manufacturer or Distributor)	Viscosity Agent	Vasoconstrictor	Preservative	Buffer	Purpose or Other Ingredients
Adapettes (Alcon)	povidone, hydroxyethylcellulose, polyoxyethylene glycol (Adsorbobase)		thimerosal 0.004%, disodium edetate 0.1%	phosphate	Lubricating and rewetting solution for use with all contact lenses. Used for mucin defiency. Isotonic.
Adapt (Alcon)	povidone, hydroxyethylcellulose, polyoxyethylene glycol (Adsorbobase)		thimerosal 0.004% disodium edetate 0.1%	phosphate	Cushioning solution for hard and hard gas permeable contact lenses; also used as an artificial tear for eyes with aqueous deficiency. Isotonic.
Adsorbotear (Alcon)	povidone, hydroxyethylcellulose, polyoxyethylene glycol (Adsorbobase)		thimerosal 0.004%, disodium edetate 0.1%	phosphate	Artificial tear. Used for aqueous deficiency. Duration of action 90 min or more. pH about 7.4. Isotonic.
B-H Hard Lens Comfort Drops (Barnes-Hind)	hydroxyethylcellulose		benzalkonium chloride 0.005%, disodium edetate 0.02%	sodium phosphate monobasic and dibasic	Hard lens comfort solution. Nonionic surfactants. Isotonic. pH 8.0.
B-H Soft Lens Comfort Drops (Barnes-Hind)	hydroxyethylcellulose, polyethylene glycol		thimerosal 0.004%, disodium edetate 0.1%	sodium borate, boric acid, potassium phosphate	Rewetting, lubricating soft lenses. Nonionic surfactant. Isotonic. pH 8.0.
B & L Lens Lubricant (Bausch & Lomb)	povidone 1.67%, polyethylene glycol, (Adsorbobase)		thimerosal 0.004%, disodium edetate 0.1%	phosphate	Lubricant for hard and soft lenses. Comfort solution.

Product (Manufacturer or Distributor)	Viscosity Agent	Vasoconstrictor	Preservative	Buffer	Purpose or Other Ingredients
B.S.S., Balanced Salt Solution (Alcon)			none	sodium acetate, 0.39% sodium citrate 0.17%	Ocular irrigation. Sodium chloride 0.49%, potassium chloride 0.075%, magnesium chloride 0.03% and calcium chloride 0.048%. mOsm 270
Clerz 2 Lubricating and Rewetting Eye Drops (CooperVision)	hydroxyethylcellulose 0.4%		disodium edetate 0.1%, sorbic acid 0.1%,	boric acid, sodium borate 0.22%	Hard and soft contact lens rewetting, comfort, and conditioner solution. Poloxamer 407 1%, sodium chloride 0.1% and potassium chloride 0.3%. Isotonic.
EFA Steri-Opt (Accurate)					Ophthalmic solution. Sodium chloride 0.48%. Isotonic.
Eye-Stream (Alcon)			benzalkonium chloride 0.013%	sodium acetate 0.39%, sodium citrate 0.17%	Ocular irrigation. Sodium chloride 0.49%, potassium chloride 0.075%, magnesium chloride 0.03%, and calcium chloride 0.048%. Isotonic.
Hydrocare Lenswet (Allergan)	polyvinyl alcohol 3.0%, (Liquifilm)		thimerosal 0.002%, disodium edetate 0.01%	sodium phosphate	Rewetting, comfort and conditioner solution for soft, hard and gas permeable lenses.
Hydrosol (Trans-Canada Contact Lens)	polyvinyl alcohol 2%		thimerosal 0.0025%, disodium edetate 0.1%, chlorhexidine gluconate 0.0025%		Soft lens comfort drop.
Hypotears (CooperVision)	polyvinyl alcohol, polyethylene glycol, (Lipiden polymeric system)		benzalkonium chloride 0.01%, disodium edetate 0.03%		Ocular lubricant, artificial tears Not for use with soft lenses. Dextrose. Hypotonic. pH about 5.5. Osmolality about 220 mOsm/L.
Isopto Tears (Alcon)	hydroxypropyl methylcellulose 0.5% or 1%		benzalkonium chloride 0.01%	phosphate and citrate buffers	Artificial tears, lubricant. sodium chloride. Duration of action about 60 minutes. Isotonic.
Lacril Artificial Tear (Allergan)	hydroxypropyl methylcellulose 0.5%, gelatin A 0.01%, polysorbate 80		chlorobutanol 0.5%	sodium acetate, sodium citrate, acetic acid, sodium borate	Ocular lubricant, artificial tear. Potassium chloride, sodium chloride, calcium chloride, magnesium chloride, and dextrose; pH 5.82.
Lacrisert (Merck, Sharp & Dohme)	hydroxypropyl cellulose		none		Acts as slow release artificial tear (SRAT). Ophthalmic insert. Weighs 5 mg and is 3.5 mm long, rod-shaped.
Liquifilm Forte (Allergan)	polyvinyl alcohol 3% (Liquifilm)		thimerosal 0.002%, disodium edetate	sodium phosphate	Ocular lubricant, artificial tear. Dextrose. Isotonic. ph 5.4.
Liquifilm Tears (Allergan)	polyvinyl alcohol 1.4% (Liquifilm)		chlorobutanol 0.5%	none	Ocular lubricant, artificial tear with duration of action about 60 min. Sodium chloride and purified water. Isotonic. pH 4.66 to 5.2.
Lyteers (Barnes-Hind)	hydroxyethylcellulose 0.2%		benzalkonium chloride 0.01%, disodium edetate 0.05%	phosphate	Artificial tears with a a duration of about 45 min. Sodium chloride 0.65% and potassium chloride 0.15%. Hypertonic; pH about 7.4.
Murine Supplemental Tears (Abbott)	hydroxyropylmethylcellulose 0.01%		benzalkonium chloride 0.01%, disodium edetate 0.05%,		Eyewash, tear supplement. Isotonic. pH about 7.7.
Murocel (Herdt & Charton)	methylcellulose 4000 cps, 1%		methylparaben 0.023%, propylparaben 0.01%		Ocular lubricant. Purified water, and sodium chloride 0.34%.
Muro Tears (Herdt & Charton)	hydroxypropyl-methylcellulose 0.5%		benzalkonium chloride 0.01%, disodium edetate 0.03%	boric acid, sodium borate	Ocular lubricant. Contains sodium chloride, potassium chloride, and dextran 40.
Neo-Tears (Barnes-Hind)	hydroxyethylcellulose, polyvinyl alcohol, polyethylene glycol		thimerosal 0.004%, disodium edetate 0.02%	sodium phosphate monobasic and dibasic	Ocular lubricant, artificial tear. Prolongs BUT. Water soluble polymers, sodium chloride, potassium chloride and carbowax 0.65%. Isotonic. pH about 7.0.

Product (Manufacturer or Distributor)	Viscosity Agent	Vasoconstrictor	Preservative	Buffer	Purpose or Other Ingredients
Pre-Sert (Allergan)	polyvinyl alcohol 3%		benzalkonium chloride 0.004%, disodium edetate 0.02%.		Wetting and cushioning solution for use with hard contact lenses.
Soft Mate PS Comfort Drops (Barnes-Hind)			potassium sorbate 0.13%, disodium edetate 0.1%	boric acid, sodium borate	Comfort drops for soft lenses, rewetting and lubrication. Nonionic surfactant. Hypotonic.
Tearisol (CooperVision)	hydroxypropyl-methylcellulose 0.5%		benzalkonium chloride 0.01%, disodium edetate 0.01%	boric acid	Artificial tears with a duration of action 40 min or more. Potassium chloride, sodium carbonate monohydrate and calcium chloride.
Tears Naturale (Alcon)	hydroxypropyl-methylcellulose 0.3%,		benzalkonium chloride 0.01%, disodium edetate 0.05%		Artificial tears with a duration of action 90 min or more. Dextran 70, 0.1%, Duasorb. Surface tension 30.4.
Tears Plus (Allergan)	polyvinyl alcohol 1.4%, (Liquifilm) povidone		chlorobutanol	sodium phosphate	Artificial tears. Sodium chloride. Sodium hydroxide or hydrochloric acid to adjust pH. Hypotonic. pH about 4.5.

LETTERS

Contact Lens Safety in the Workplace

Editor, C.J.O.

As a result of the recent concern generated by anecdotal and even fabricated reports of injuries attributed to contact lenses in the work place, the College and University Safety Council of Ontario (CUSCO) has established a data pool on contact lenses and occupational eye injuries. The object is to gather well documented case studies and other scientific information so that decisions regarding the advisability of wearing contact lenses in certain laboratory/industrial environments are based on reasoned evaluation of available data rather than infelicitous generalities.

Optometrists who have information concerning eye injuries, or eye protection, while wearing contact lenses are urged to send as complete as possible case reports to:

Mr. Ronald Angus, Safety Specialist,
College and University Safety Council of Ontario,
Safety Education Division,
Workers' Compensation Board,
80 Bloor Street West,
Toronto, Ontario.
M4W 3C3

This information will contribute to the overall understanding of the exact risk to benefit ratio of contact lens wear in the workplace. The possible hazards to certain patients if contact lens are not worn are well known to any eye practitioner. The Canadian Ophthalmological Society policy statement on contact lenses in the work environment states, "Contact lenses may be worn in any work environment if proper forward safety eye wear is utilized in conjunction with contact lenses. Exception, however, may be in chemical or fume environments where individual considerations should apply." This viewpoint is not held by many Safety Officers and Directors of Occupational Health and Safety.

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CONTACT LENS

The Use of Contact Lenses in Swimming and Scuba Diving†

C. Hoelting*
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E.S. Bennett***

Abstract

The ametropic swimmer or scuba diver is at a disadvantage when engaging in these sports. This paper addresses some aspects of the problem, and offers some solutions as to the use of contact lenses: the effect of a wet environment on the physical properties of rigid and flexible materials, and how fitting characteristics may be affected; the pros and cons of both rigid and flexible contact lenses in swimming with and without goggles and masks; the professional person's advice in the above sporting activities when contact lenses are desired.

Abrégé

L'amétrope est à un désavantage lorsqu'il désire faire de la natation ou de la plongée sous marine. Ce travail s'adresse à quelques aspects du problème et offre des solutions pour leur usage dans ces sports: l'effet d'un environnement mouillé sur les propriétés physiques de matériaux rigide et flexible et les effets sur l'ajustage et la performance des lentilles; le pour et le contre des lentilles rigides et souples dans la natation et la plongée avec et sans masques ou lunettes protectrices (goggles); les recommandations du professionnel à ceux qui désirent utiliser des lentilles dans ces sports.

Introduction

Millions of Americans enjoy all types of water sports both recreationally and competitively. As in any athletic endeavor, vision plays a large role in determining performance and enjoyment. Those with a refractive error are at a distinct disadvantage. Unlike the emmetrope, they can't just put on a pair of goggles or a face mask and see when they get in the water.

Being able to see clearly can have profound effects if no more than being able to find the towel or locate friends when getting out of the water. In competitive swimming and diving, it is well known that being able to see clearly is a distinct advantage. Not only does one's depth perception improve, but also one's awareness of position and direction. They are very important when trying to shave off seconds or tenths of seconds from one's time.

What role can contact lenses play in water sports? This paper will attempt to determine what possibilities contact lenses hold, their uses, problems, precautions and limitations. Specifically, the use of contact lenses in swimming and scuba diving will be explored.

The Use of Contact Lenses in a Wet Environment

The first question to consider with regard to the use of contact lenses in water-related activities is: "What happens to the lens? Do any physical changes take place?" As with much of the discussion in this paper, the rigid contact lens can be discussed rather quickly. The rigid PMMA contact lens is essentially water-free and impermeable, so its parameters remain unchanged in wet environments.

The hydrogel contact lens, however, is very vulnerable to its surroundings, especially with any change in tonicity. It is well known that when a hydrogel contact lens is placed in a hypotonic solution it will imbibe water and flatten. One could then predict that the lens should become loose on the eye. Likewise, the wearing of a hydrogel contact lens in salt water, a hypertonic environment, should cause the lens to lose water and steepen in fit,

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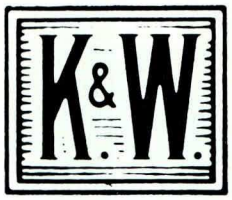

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resulting in a tighter fitting lens.[1] In reality, the resulting fit in each case is just the opposite. The more hypotonic the environment the tighter the lens sticks to the cornea; the more hypertonic the looser the lens fits.

Why do the lenses stick on the cornea in hypotonic conditions? It would be easy to assume that the resulting hydrated lens is hypotonic with respect to the cornea and the resulting osmotic gradient causes water to be drawn from the lens into the cornea, resulting in a "pull" or sticking of the lens to the cornea. It has been reported that a sodium chloride content below 0.8 percent began to produce an adherence effect. This effect grew stronger with decreasing tonicities until complete adherence of the lens to the cornea occurred at 0.4 percent sodium chloride.[2] This would tend to correlate well with the osmotic gradient theory; that is, the cornea being hypertonic with respect to the lens, imbibes water from the lens. The cornea, being able to maintain a state of normal dehydration through its inherent physiological mechanisms, remains hypertonic and therefore the lens remains adhered to the cornea.

Conversely, it has been found in some patients that when they tear profusely the lenses also stick to the cornea. It is difficult to explain this finding as a result of a change in tonicity of the tears, since it is usually thought that the normal tear tonicity does not vary more than 0.1 percent from the 0.9 percent sodium chloride equivalent.[2]

In an experiment by Solomon, hydrogel lenses were equilibrated in concentrations ranging from 0 percent sodium chloride to 1.8 percent sodium chloride. The experiment attempted to imitate the effect of the lens on the cornea; that is, two materials of different tonicities coming into contact. All combinations of lenses failed to stick, to any degree, with one another.[3] As a result, consideration must be given to other possible factors including the following:

1) Surface factors of the hydrogel lens. Lenses manufactured with different surface electrical charges and surface viscosities, but having the exact parameters can act as differently as if base curves were changed by diopters.
2) Dimensional changes. The swelling of a lens may tighten the fit. The shrinking of the lens may loosen the fit.
3) Perhaps thinning or thickening the tear film between the lens and cornea is a factor.[3]

Whatever the reasons are for hydrogel lens sticking, it is known that altering the osmotic environment alters its ability to adhere to the cornea. A study measuring the amount of tensile force needed to pull a lens off the cornea under various salt concentrations showed that it didn't matter for the rigid lens. No matter what the salt concentration was, the amount of force necessary was extremely low.

However, the amount of force necessary to remove a hydrogel lens remained relatively high and constant until up to 0.9 percent sodium chloride, at which time the amount of force dropped and continued to fall until around 1.1 percent, at which time adhesion was extremely low and remained constant with increasing concentrations.[4]

Interestingly enough, however, in the same experiment the spontaneous loss of a lens at various salt concentrations was investigated. It was found that at no concentration was there any difference in hydrogel lens loss. Not a single hydrogel lens fell out of the eye despite frequent vigorous eye blinking and head movements. As could be expected though, all the rigid lenses fell out at all salt concentrations.

Swimming and Contact Lenses

Should or can one wear contact lenses while swimming? To answer this question the following need to be considered:

1) Is there a high risk of lens loss?
2) Can the lenses become damaged?
3) Are there any adverse effects on the eye or on vision?
4) Is there a safety factor for the wearer while swimming, and should any precautions be taken?[5]

Rigid contact lenses can be summed up quite briefly. The risk of lens loss is so high that their use in swimming is contraindicated. The loss frequency can be reduced if an oversized lens is used in combination with squinting by the swimmer. However, even with these precautions the rigid contact lens wearer should be instructed carefully as to the possibility of lens loss.[6]

It was discussed earlier as to why hydrogel contact lenses adhere to the cornea. Can the swimmer safely assume then that there is a low risk of hydrogel lens loss? Several studies have shown that in chlorinated pool conditions, hydrogel lenses showed signs of sticking to the cornea within one minute and were firmly adherent in three to four minutes. Once out of the water the lenses showed signs of loosening in five to ten minutes and the

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normal lag on blinking returned within fifteen to thirty minutes. The removal of the lens can be hastened by instilling normal saline solution, although a minimum of fifteen to twenty minutes is still necessary.[1,3,5,7]

The average hydrogel lens loss in all of the studies was 10-15 percent. The experiments were carried out under rigorous conditions. The swimmers were usually of competitive caliber. They were instructed to swim as much as possible with their eyes open, even to the point of diving into the water with both eyes open.[1,3,5,7,8] It can be safely assumed that an average swimmer does not generate nearly the force that the study participants would. Lens loss by the average swimmer would probably be less.

One might be able to expect the same degree of lens loss in conditions other than chlorinated pools. Although almost no studies have been done in conditions other than chlorinated pools, one experiment performed in fresh and sea water showed no hydrogel lens loss. In fact, the investigator claims that the lens adhered for a longer time after swimming in sea water than it did after fresh water or in a chlorinated pool.[9]

Although this low degree of lens loss is obviously an advantage, it can be the cause of serious injury. If a hydrogel lens is forcefully removed after swimming before it has had time to loosen, corneal epithelial denuding could take place.

Other adverse effects of swimming with hydrogel lenses have been studied. It is well known by anyone who swims in a chlorinated pool that one's eyes tend to burn after awhile. Competitive swimmers call this a "chlorine burn" which occurs in as early as fifteen minutes of swimming. "Chlorine burn" results from corneal edema and epithelial cell damage. The biomicroscopic picture of "chlorine burn" resembles the microcystic corneal edema and staining seen in an over-wearing syndrome of contact lenses.[10] In comparative studies the use of hydrogel lenses completely eliminated or greatly reduced the "chlorine burn" signs and symptoms. There was no loss in visual acuity and no characteristic stipple staining. The hydrogel lens appeared to actually be viewed as a protective device or shield.[3,5,10]

The hydrogel lens therefore, may eliminate many of the causes of discomfort while swimming in a pool. Obviously, "chlorine burn" is diminished. In addition, the bobbing of the swimmers heads in and out of the water gave them a better sense of everything around them. They could now see since their ametropia was corrected and there was no corneal edema.[3]

Although seemingly giving the eye some protection while swimming, is there any damage to the hydrogel lens? It has been suggested that chlorine may bind to the polymer of hydrogel lenses triggering an allergic or delayed response. Analyses of the lenses following a number of studies do not substantiate this. No damage to the lenses was found.[3,5,10]

What precautions, then, should the professional eyecare practitioner give his/her patients concerning swimming with contact lenses? First of all, rigid contact lenses have too high a loss risk. Hydrogel lenses can be worn without loss, provided unsalinated water is splashed or instilled into the eye while wearing the lenses. This should be done for at least one minute prior to entering the water. Hydrogel lenses should not be removed from the eye for at least thirty minutes after leaving the water. Normal saline can be placed into the eyes to facilitate lens removal.

Although it appears as though it is safe to wear hydrogel contact lenses while swimming, samples of chlorinated pool water periodically show low counts of staphylococci, streptococci, and pseudomonas aeruginosa. If a patient has a small corneal abrasion, such as from a tiny foreign body under the lens, then the contamination of the lens could theoretically result in a serious ocular infection. It is for this reason that one should consider not recommending the unqualified use of hydrogel lenses for swimming.[5]

Underwater Use of Contact Lenses

There are approximately two million Americans who have received scuba diving instruction, 500,000 of whom actively engage in sport diving.[11] The visual demands while diving are quite unique. Objects appear one-fourth closer, and one-third larger than they really are.[12] There is a loss of stereoacuity. Color changes occur at various depths.[13] Above all, there is a loss of visual acuity.

Corneal immersion in water effectively nullifies the cornea's refractive property, producing 42 diopters of hyperopia, giving an unaided visual acuity near 20/4,000.[14] Obviously, a face mask or goggles would provide the necessary air interface and negate this problem. However, the face mask and goggles provide their own problems. A person with good vision normally has a visual field of 200 degrees horizontally and about 130 degrees vertically. Since total reflection from a plano surface takes place at 48.5° a diver wearing a mask or goggles can only have a field of 97 degrees in either direction.[12,13] Wrap-around masks with glass side plates allow unrestricted lateral vision, but as images pass from the side to the front an "image jump" occurs.[13] Adding to these visual problems is the diver who has a refractive error. Obviously, this person could benefit greatly from wearing some sort of correction while diving.

Prescription bearing masks and goggles have been in use for some time. How would contact

lenses provide any advantage over these? Prescription bearing masks have a problem of fogging and getting out of alignment. Also, when the mask is removed, as is often necessary on surfacing, so is the prescription, making it difficult to locate one's partner or boat. Contact lenses would not only relieve these problems, but also allow for more normal central vision and full peripheral vision if side plates are contained in the mask.[6,13]

An early attempt at using contact lenses with diving was the Skin Diver Contact Air Lens (SCAL). This was a prescription scleral lens design fitted in the normal way. However, after fitting has been completed, an air space is made by cementing a small plastic cell on the front surface of the lens. This in actuality is a tiny mask on the front of each eye. The diver doesn't wear a face mask and has a wide lateral field resulting in an unobstructed view of the surroundings. These soon came into disuse, however, as divers would contract very serious cases of conjunctivitis. Since tests in hyperbaric chambers failed to elicit this response, it was assumed that the prolonged eye exposure to the water was the cause.[12]

Are there any problems then in wearing contact lenses behind a mask or goggle? One study has shown that corneal epithelial edema can occur in divers wearing PMMA rigid contact lenses. Divers experience soreness of the eyes, halos and spectacular highlights, and decreased visual acuity. These results were not seen with hydrogel lenses. Upon decompression, bubbles formed behind the rigid contact lens. These bubbles occurred in the precorneal tear film secondary to an outgassing of nitrogen from the cornea and tear film, relative to decreasing pressure as ascent from a dive progresses. The PMMA lens material does not allow for direct gas permeation, and tear exchange via blinking is inadequate to remove the bubbles. This trapped gas disrupts tear exchange and therefore interferes with metabolic exchanges, resulting in central corneal edema. The clinical presentation mimics a rigid lens that is fitted too steep. None of the above findings were seen for the hydrogel lens. It was assumed that the gel lens allowed for passage of nitrogen at a sufficient rate to dissipate all of the gas.[16]

In summary, the rigid contact lens can cause discomfort, corneal injury and visual impairment. In addition, the possibility of corneal infection is present which is known to occur at a greater frequency when the integrity of the corneal epithelium is compromised.[16] Also, as was discussed previously, the rigid lens can be washed out and lost quite easily. It is for these reasons the rigid contact lens should be discouraged for diving. The hydrogel contact lens, however, has not been reported to cause any problems while diving. The same advice and precautions used for the swimmer should also be considered for the diver.

Conclusion

Special considerations have to be taken in using rigid and hydrogel contact lenses for swimming and scuba diving. In addition to the possibility of corneal edema upon decompression from a dive, the rigid lens wearer needs to be instructed on the distinct possibility of lens loss in a wet environment. The chance for loss is high enough that its use in water sports should be discouraged.

The hydrogel contact lens, on the other hand, behaves quite differently. In a hypotonic environment, the hydrogel lens adheres to the eye. The frequency of lens loss has been found to be quite low. The lens itself does not seem to undergo any damage, and in fact, may even provide a certain degree of protection to the eye, especially in a chlorinated pool.

The swimmer and diver react quite favorably to the use of the hydrogel contact lens. The advantages presented in this paper are reflected in the increased performance and level of enjoyment that are reported in the literature.

As long as attention is given to the special instructions and precautions that were outlined, the hydrogel contact lens may provide the swimmer and diver a unique and viable alternative. Surf's up.

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Prevalence of Migraine Headache Among an Optometry Clinic Patient Sample

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M.A. Pierson***

Abstract

The objectives of this investigation were: 1) to determine the prevalence of migraine among patients seen at the Optometry Clinic at the University of Waterloo, 2) to compare the prevalence of migraine in this clinical population to that of other studies, 3) to examine the correlation of migraine with observed ocular conditions and medical problems reported by the subjects.

Abrégé

Cette enquête vise à établir une comparaison de la fréquence de la migraine entre un échantillon des patients à notre clinique d'optométrie et la population générale ainsi qu'établir une corrélation entre la migraine et divers problèmes de santé y inclus les problèmes visuels. La proportion femmes/hommes de migraineux dans notre échantillon est 5:1 et dans la population générale, elle est 50.6:49.4. Evalués contre un groupe contrôle du même age et sexe, les migraineux manifestent une fréquence plus élevée d'arthrite, de tension artérielle et d'allergies. Plus de migraineux manifestent une emmétropie mais la direction de l'astigmatisme était semblable dans les deux groupes. Ces résultats suggèrent une relation entre la migraine et d'autres problèmes médicaux.

Migraine is a vascular headache which affects 10-15% of the population.[1,2] Women constitute 75% of migraineurs. In its classic form, migraine headache may include such visual disturbances as photophobia, scintillating scotoma and hemianopsia.[3] In many patients the headache may be triggered by stress, bright lights, lack of sleep, excessive sleep, oral contraceptives or food containing glutamate or tyramine (cheese, yogurt, nuts, beans and chocolates).[4,5]

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As a result of the visual components of the headache, many migraine-sufferers consult their optometrist. A diagnosis of migraine headache and provision of patient counselling to avoid triggering factors can be of assistance. In addition, a comprehensive assessment of glare in the patient's environment and the prescription of absorbtive lenses to reduce glare may also alleviate migraine.

Method

The patients involved in this study were drawn from the persons visiting the University of Waterloo Optometry Clinic for oculo-visual assessment. Patients are randomly assigned by the clinic administrative staff to clinic rooms. No alteration was made in this assignment for selection of patients for this study. All the patients involved in this study were seen by one of us (G.Y.M.). The patients in the control group were selected from the patients examined and were matched for sex and age with the patients in the migraine group.

Each patient received a complete oculo-visual assessment, including a comprehensive health-illness history, external and internal ocular health examination, refractive assessment and binocular vision evaluation.

The responses and findings in the patient files provide the data source for this study.

Medication — Oral Contraceptives

Of the 44 female patients in the control group who responded, twelve were on some form of oral contraceptive at the time of the examination and two had taken oral contraceptives in the past. Fifteen of the 44 female respondants in the migraineur group were taking oral contraceptives at the time of the examination and 3 had taken some form of birth control pill in the past.

Refractive Assessment

The control group contained 7 emmetropes, while the migraineur group contained 14 emmetropes. The mean spherical equivalent refractive error of the control group was -1.52D±2.528 S.D. In the

Table 1
Visual Status Summary

Refractive Error	Sample Populations	
	Control	Migraineur
Spherical Equivalents		
— mean	-1.52D	-0.72D
— Standard deviation	2.53D	2.16D
Astigmatism		
— % with-the-rule	59.7%	57.7%
— % against-the-rule	23.9%	30.8%
— % oblique	16.4%	11.5%
Axis: Mean	99.72	44.18°
S.D.	71.62	64.46°

migraineur group the mean spherical equivalent refractive error was -0.72D±2.16D (See Histogram 1). The analysis of astigmatism indicated 59.7% of the control astigmats had with-the-rule astigmatism; 23.9% had against-the-rule astigmatism, and 16.4% had oblique astigmatism. In the migraineur group, 57.7% had with-the-rule astigmatism; 30.8% had against-the-rule astigmatism, and 11.5% had oblique astigmatism. (For a summary of ocular status see Table 1).

Discussion

Troost[3] indicated that migraine affects 10% of the population. Our study revealed that 10.5% of this clinical sample suffers from migraine with a ratio of female to male migraineurs 5:1. A study by Steiner et al[6] demonstrated a ratio of female to male migraineurs of 3.7:1, while Hirayama[7] reports a female to male ratio of 1.9:1.

Migraine headaches have been linked with various systemic and structural disorders, such as cervical vertebrae misalignment, mitral valve prolapse and hyperlipidemia[4]. Migraine has also been associated with allergies[8]. The correlation between migraine and allergies can be explained by the fact that histamine and serotonin which are released during allergic reactions are also involved in vascular headaches[9]. Antiserotonines[10] (methsergide, Sansert) and antihistamines[11] (cyprohepatidine) have been utilized in the treatment of migraines.

This study indicated that migraineurs were allergic to a wide range of allergens. The migraineurs in this study reported reactions to 22 allergens, while the control group reported reactions to 14 allergens. Ten migraineurs suffered from hay fever compared to 5 in the control group (Table 2). Migraineurs demonstrated more multiple allergies than members of the control group.

Table 2
Allergies in the Migraineur and Control Groups

Allergen		Sample Population Control	Migraineur
Airborne:	Dust	2	8
	Smoke	2	1
	Hayfever	5	10
	Mold	1	1
Sub-total		10	20
Animal:	General	4	6
	Wool	0	1
	Feathers	1	0
Sub-total		5	7
Drug:	Penicillin	5	3
	Morphine	0	2
	Codeine	0	1
	Demerol	0	1
	Phenobarbitol	1	0
	Fluress	1	0
Sub-total		7	7
Food:	Orange Juice	0	1
	Caffeine	1	1
	Food Colouring	0	1
	Peanut Butter	0	1
	Sugar	0	1
Sub-total		1	5
Contact:	Formalin	0	1
	Face Medication	0	1
	Silver	0	1
	Poison Ivy	0	1
Sub-total		0	4
Bees		1	0
General		1	1
Asthma		3	4
Totals		28	48

A family history of high blood pressure was significantly more frequent in the migraineurs group than in the control group (Table 3). The factors involved in both migraine and the regulation of blood pressure, such as mechanisms for vasoconstriction, may explain the relationship between these two conditions.

When compared to the control group the migraineurs had a higher prevalence of arthritis. To our knowledge, this is the first time that a relationship between migraine and arthritis has been indicated. This raises the question of the existence of a common causation.

The data indicates a slightly higher prevalence of migraine headaches in those persons with a thyroid condition or a familial history of thyroid disease.

Table 3
Occurrence of Systemic Disorders in the Migraineur and Control Groups

	High Blood Pressure						Arthritis						Thyroid					
	Total Responses		Family History of Disorder		Patients with Disorder		Total Responses		Family History of Disorder		Patients with Disorder		Total Responses		Family History of Disorder		Patients with Disorder	
Sample Population	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Control	54	100	12	22.2	1	1.9	41	100	6	14.6	2	4.9	44	100	3	6.8	1	2.3
Migraineur	54	100	28	51.9	2	3.7	39	100	12	30.7	6	15.3	41	100	4	9.8	2	4.9

The sample and control groups did not provide sufficient number of responses for any conclusion on a relationship.

Results and Observations
Sample composition

Of the 516 patients examined during the course of the study, 261 (50.6%) were females and 255 (49.4%) were males. Patients presenting with a history of migraine numbered 54 (10.5%). The female to male ratio of the migraineur group was 5:1. The age range of the migraineurs, shown in Table 4, ranged from 10 to 60 years with almost 50% between the ages of 20 to 30.

TABLE 4 AGE MATCH

	AGES				
	10-19	20-29	30-39	40-59	60
CONTROL GROUP	4	39	6	2	3
MIGRAINEUR GROUP	7	26	9	5	5

Systemic Disorders (Tables 2, 3)

In the control group, 1 patient had high blood pressure and 12 others reported a family history of high blood pressure. Two migraineurs had high blood pressure and 28 reported a family history of the disorder.

Arthritis was acknowledged by two patients in the control group and 6 reported a family history of the disorder. Among the migraineurs examined, 6 patients had arthritis and 12 noted a family history of the disorder.

One patient in the control group had a thyroid disorder and three reported a family history of thyroid problems. In the migraineur group, two patients had thyroid disorders and four had a family history of thyroid problems.

In the control group, 20 patients suffered from allergic responses to a range of 14 allergens. Of the fifty respondants in the migraineur group 24 suffered from allergic responses to a range of 22 allergens.

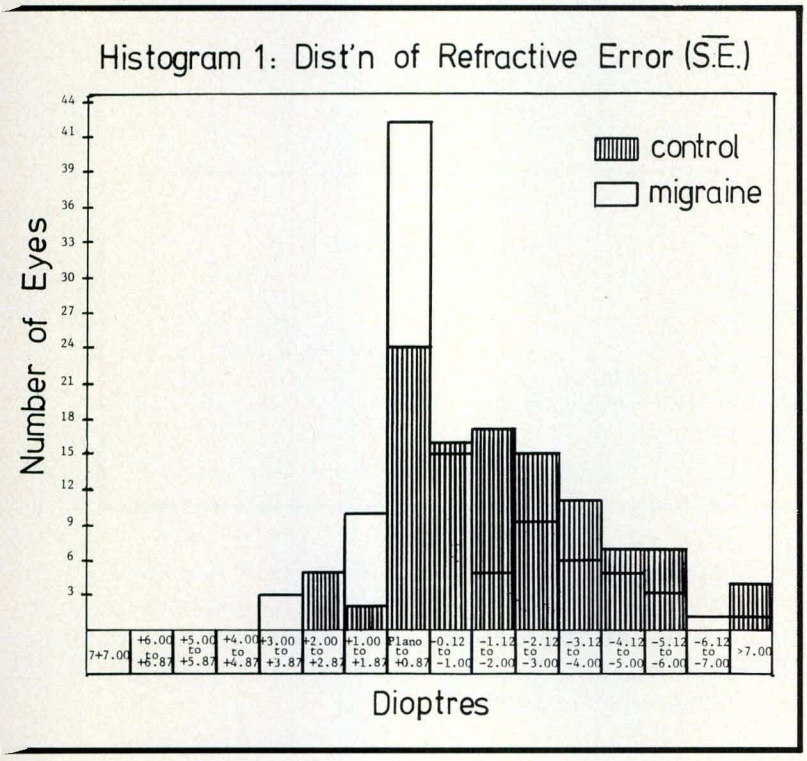
Four of the control group and 5 of the migraineurs had asthma or atopic allergies. Twenty of the migraineurs and 10 of the control group were allergic to air-borne antigens. Ten of the migraineurs and 5 of the control group suffered from hay fever. Allergic responses to animal antigens numbered 7 among the migraineurs and 5 among the control patients. For a detailed summary of allergic responses see Table 3.

Oral contraceptives (B.C.P.) have been implicated in triggering migraine headaches. These agents can trigger a stroke, especially if the patient had a family history of high blood pressure and suffers from migraine headaches[5], as did many of the patients in this study. Despite these contraindications for migraineurs, more of the migraineur group (18) were taking BCPs than the control group (14). Most of the migraineurs were either unaware of the adverse effects of the BCP or were not ready to give up the convenience of the BCPs in contraception. They were encouraged to discuss this with their family physician.

There were twice as many emmetropes in the migraineur group as in the control group. The mean refractive error in the migraineur group was -0.72D, while in the control group it was -1.52D. Although the findings imply a lower degree of refractive error amongst migraineurs, this may simply be a reflection of an attempt to seek relief from the visual symptoms which accompany a migraine attack. Even those patients whose attacks do not follow the classical patterns may seek optometric care since a

majority of the public associate headache with visual problems.

The data confirm previous studies that approximately 10% of the patients presenting for vision assessment suffer from migraines. The data suggest a correlation exists between migraine and allergies, arthritis and familial high blood pressure. While the data are insufficient to establish a correlation between migraine and thyroid disorder such a relationship cannot be ruled out. Vision care practitioners thus should look for the presence of these disorders when patients present with a history or symptoms of migraine.



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Acknowledgements

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Variation de Puissance dans la Peripherie de Lentilles Progressives (Variation in Power in the Periphery of Progressive Addition Lenses)

P. Simonet*
Y. Papineau**
D. Gordon***

Abrégé

Un dispositif adapté à un focométre à projection de type Nikon permet la mesure de puissance dans la périphérie d'une lentille ophtalmique. 3 types de lentilles progressives ont été étudiés, le Varilux 2, l'Ultravue, et le NZ. Dix lentilles de chaque type ont été mesurées, la puissance de l'addition variant de +1,00 à +3,00 dioptries. Une représentation graphique des résultats permet d'établir des hypothèses sur les caractéristiques optiques des lentilles étudiées.

Abstract

A device adapted to a Nikon projection vertoxometer permits the peripheral power measurement on an ophthalmic lens. 3 types of progressive addition lenses were studied: Varilux 2, Ultravue and NZ. Ten lenses of each type, with additions varying from +1,00 to +3,00 diopters were analysed. The graphic representation of the results permits to state hypothesis concerning the optical characteristics of these lenses.

Introduction

Les lentilles à variation progressive de puissance ont été une innovation dans la correction de la presbytie. Après les tentatives initiales de Wolk et Weinberg[1], qui restèrent vaines, la première lentille de ce type à être commercialisée avec succès sur le marché nord-américain fut mise au point par Maitenaz[2,3]. Depuis ce temps, d'autres lentilles sont apparues, conçues à nouveau par Maitenaz[4] ou par Winthrop[5]. Ces différents types de lentilles ont fait l'objet de présentation dans la littérature optométrique et ophtalmologique[6-9].

Toutefois les propriétés et les caractéristiques optiques des différents types de lentilles progressives n'ont jamais été décrites avec précision, elles restent en grande partie du domaine de l'inconnu. Les informations transmises aux professionnels par les fabricants sont généralement plus de nature technico-commerciale que réellement scientifique. Une étude effectuée par un milieu indépendant de l'industrie s'avérait nécessaire. Le cadre universitaire se prêtait alors très bien à ce type de recherche, dont il est possible de présenter les résultats préliminaires.

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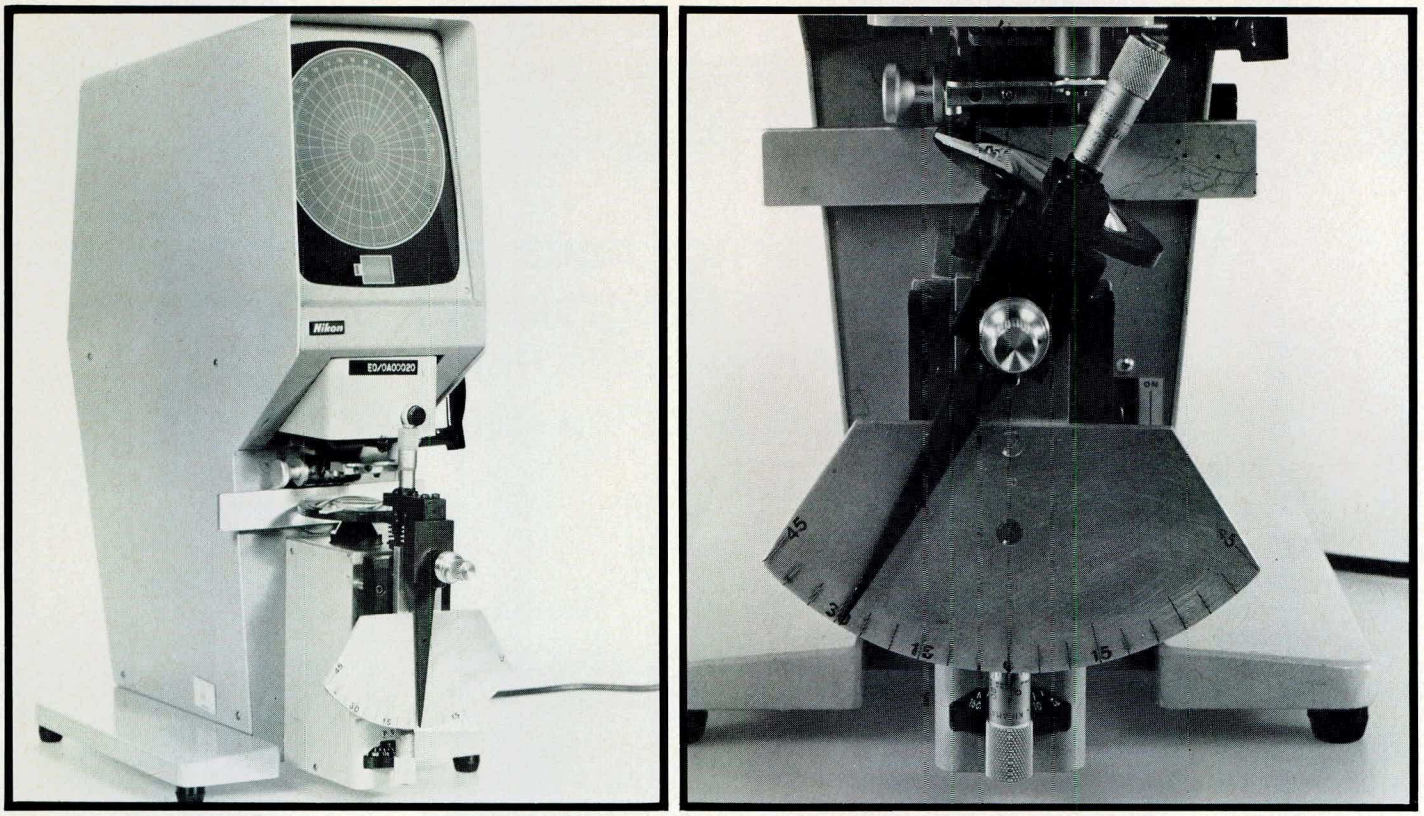
***B.Sc., O.D., clinicienne
Ecole d'Optométrie
Université de Montréal

Méthode

Cette étude a été réalisée avec un focomètre à balayage tel que décrit par Simonet, Papineau et Gordon[10]. L'appareil se compose d'un focomètre à projection de type "Nikon projection vertexometer", auquel a été ajouté un dispositif permettant la mesure de la puissance dans la périphérie de la lentille ophtalmique (photos 1 et 2). La puissance périphérique est mesurée par rapport à la sphère des sommets. Le dispositif permet de compenser la flèche de la face arrière de la lentille de manière à ce que le rayon de la sphère des sommets soit toujours 25 mm en cours des mesures. Le dispositif est en rotation autour du centre de la sphère des sommets. Cette rotation qui incline la lentille par rapport à l'axe optique de l'appareil, est équivalente à la rotation de l'oeil derrière la lentille, lors d'une position de regard secondaire et oblique.

Dans les mesures, l'inclinaison de la lentille varie de 0 à 40° par étapes de 5°. Le support qui soutient



Focomètre à balayage permettant les mesures dans la périphérie des lentilles ophtalmiques.

la lentille est gradué sur 360° de 5 en 5 degrés. La lentille à mesurer est solidaire d'une bague mobile qui comporte un index. Bien que par cette disposition, il soit possible d'évaluer des méridiens sur la lentille espacés de 5°, les mesures n'ont été faites que tous les 15°. Un diaphragme de 5 mm avait été choisi pour l'appareil.

Les lentilles progressives étudiées étaient les suivantes: le Varilux 2 de la Compagnie Essilor, l'Ultravue de la compagnie AOCO, et le NZ de la compagnie française BBGR commercialisé au Canada par la firme Pro-Optic. Pour chaque type, 10 lentilles ont été mesurées; 5 présentaient une puissance convexe de +0,50 dioptries, 5 étaient concaves avec une puissance de -0,50 dioptries. Pour chaque puissance, l'addition variait de +1,00 à +3,00 dioptries par palier de 0,50 dioptrie. Pour un même type, des lentilles droite ou gauche ont été utilisées indifféremment. Les lentilles étaient découpées à un diamètre de 55 mm. Le centre géométrique des lentilles découpées ne se trouvait être confondu avec le repère de vision de loin que pour le Varilux 2. Pour l'Ultravue, le NZ, il se situait 2 mm en dessous. Ces différentes conditions ont été sélectionnées pour établir celles optimales, en vue de recueillir dans des recherches ultérieures le maximum d'informations.

Résultats

Les résultats des mesures ont été rapportées suivant une représentation graphique pour en faciliter l'analyse. Cette représentation est la projection dans un plan des différents méridiens mesurés sur la lentille. Sur chaque méridien est reportée la position angulaire de chacun des points de mesure, l'espace entre deux points représente une valeur angulaire de 5°. Le centre du diagramme correspond au centre de la lentille telle que découpée. Les puissances dioptriques sont représentées suivant une représentation rapportée par Wittenberg.[11] L'équivalent sphérique est représenté par un cercle. Il est en trait plein pour une valeur convexe, et en pointillé pour du concave. Son diamètre est proportionnel à la puissance dioptrique. L'astigmatisme est représentée par une ligne, dont la longueur est proportionnelle au montant du cylindre, et dont l'orientation représente la position de l'axe du cylindre négatif. Un astigmatisme inférieur ou égal à -0,50 n'a pas été représenté.

Discussion

Lors du découpage et du meulage des lentilles, le repère de la zone de vision de loin a été placé à différentes positions selon le type de lentille progressive. Les zones de vision de loin ou de près se trouvent donc à des niveaux différents suivant les types de lentilles, aussi n'est-il pas possible d'établir une comparaison exacte entre les différentes lentilles progressives. Toutefois il est possible d'une part d'établir des constatations générales, et d'autre part de constater les caractéristiques propres à chacun des modèles de lentilles progressives.

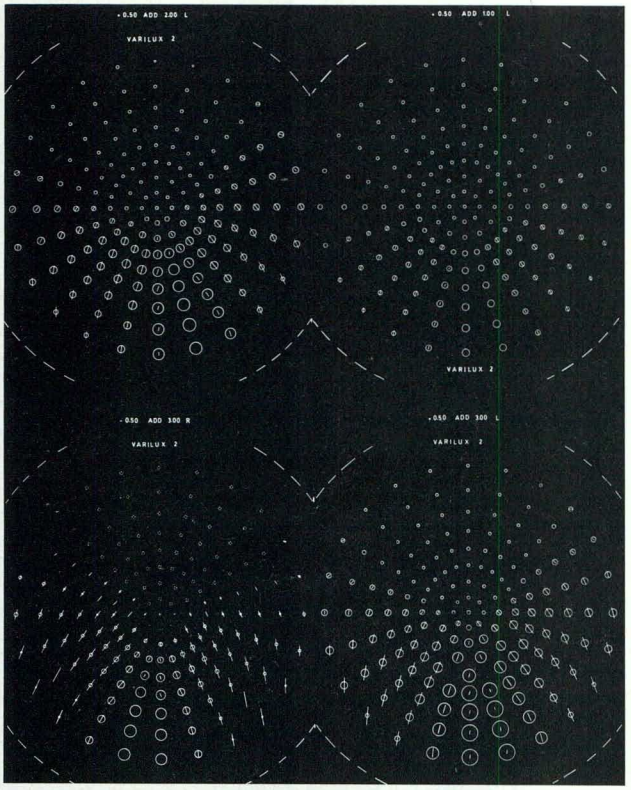
Quel que soit le type de lentilles, les résultats montrent bien que

1) la largeur du canal de progression et l'étendue de la zone de vision de près sont inversement proportionnelles à l'addition
2) les défauts de puissance, principalement l'astigmatisme, dans la périphérie de la lentille sont proportionnels au montant de l'addition.

L'adaptation aux lentilles progressives, plus facile chez le jeune presbyte, observée en clinique[11,12] pourrait s'expliquer par ces propriétés générales.

L'étude des caractéristiques Varilux 2 semble montrer (photo 3)

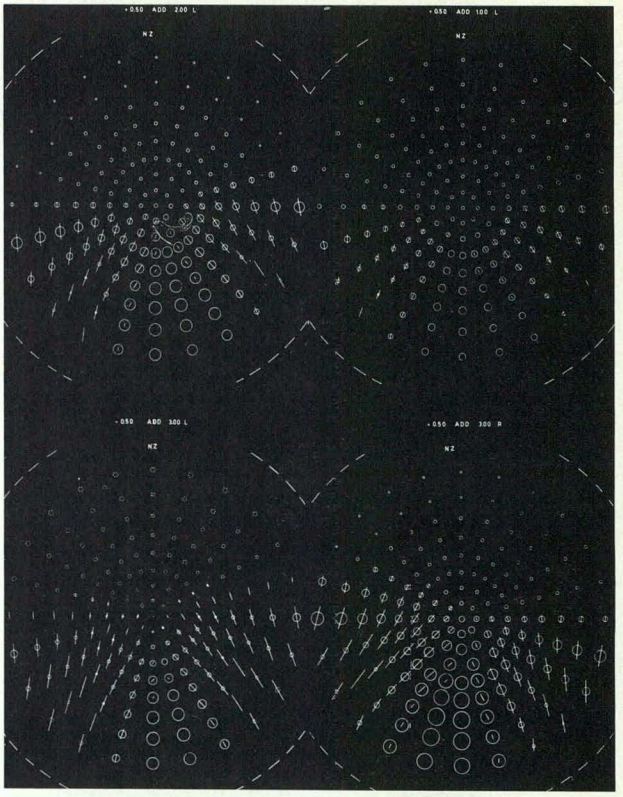
— une réduction rapide de la largeur de la zone de vision de près avec l'augmentation de l'addition
— un astigmatisme variable avec l'addition, mais d'une montant modéré et relativement stable en vision de près pour une valeur d'addition donnée
— une sur-correction convexe accompagnée d'un astigmatisme, dans la périphérie de la vision de loin.



Variations de puissance sur des lentilles de type Varilux 2. Les conditions de mesures, et la description de la représentation sont décrites dans le texte.

Ces caractéristiques s'appliquent aussi aux lentilles concaves, toutefois on constate que pour des additions égales ou supérieures à +2,00 dioptries, la zone de vision de près apparaît plus étendue sur le concave que sur le convexe.

Il ne semble pas y avoir de distinction entre le convexe et le concave sur la lentille progressive de type Ultravue. (photo 4). Le modèle apparaît avoir les caractéristiques suivantes:



Variations de puissance sur des lentilles de type Ultravue. Les conditions de mesures et la description de la représentation graphique sont décrites dans le texte.

— un astigmatisme augmentant rapidement avec l'addition, d'un montant élevé en bourdure de la vision de près, et d'axe variable dans la périphérie de la zone intermédiaire
— une variation très rapide de l'équivalent sphérique en bordure de la vision, indice d'une réduction de la sphère
— une zone de vision de près étendue, se réduisant modérément avec l'addition
— une absence d'astigmatisme et de variation de puissance sur la zone de vision de loin.

La lentille NZ présente ses caractéristiques propres (photo 5) à savoir:

— une légère sur-correction convexe accompagnée d'astigmatisme, principalement du côté nasal de la lentille en vision de loin.
— un astigmatisme en bordure de la zone intermédiaire et de celle de près dont le montant semble à mi-chemin des deux types précédents.
— une zone de vision de près dont l'étendue diminue avec l'addition et dont la taille semble ainsi intermédiaire comparée à celles des deux types précédents.

Avec le NZ, il ne semble pas y avoir de différence de taille entre le convexe et le concave en ce qui a trait à la taille de la vision de près.

La comparaison précise entre les divers types de lentilles progressives pourrait s'avérer hasardeuses, si elle ne se fait qu'à partir des résultats. En effet les conditions de mesures favorisent l'étude de la zone

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Canadian Journal of Optometry
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Vol. 46, No. 1
Special Supplément Spécial

Highlights presented by President Dr. Roland des Groseilliers of the C.A.O. Brief to the House of Commons Standing Committee on Health, Welfare and Social Affairs in response to the proposed Canada Health Act.

Mr. Chairman, Members of the Committee, thank you for the opportunity to address you on Bill C-3.

We would be remiss if we did not take this opportunity to recognize the dedication and the contribution of many groups and individuals taking part in this process to achieve a better health system for Canadians.

As the President of an Association which represents a group of 2300 practioners who serve the vision needs of some seven million Canadians every year, as a part of the present Medical Care Act, I hope that our presentation will serve to assist you in enhancing the delivery of health care to Canadians.

Our greatest concern regarding the proposed Canada Health Act is that a single vital clause of the Medical Care Act has not been retained in the proposed Canada Health Act, a clause placed there 18 years ago due to the efforts of Optometry and recognized by the then Prime Minister Lester B. Pearson, a clause which provided, and I quote "for additional health services including optometrical services", a clause which allowed for flexibility within the health insurance programs.

Section 4(3) specifically allows for the coverage of health care services under health care plans across this country. Therefore, we recommend that Section 4(3) be retained in the proposed Canada Health Act. This would ensure that no diminution of services would occur.

We recommend other specific amendments to Section 2 of the new Act so as to avoid disruption of present optometric services to Canadians under the present existing programs.

Over 60% of vision care utilization is performed by optometrists. Because of the wide dispersement of Canadians, the population finds optometrists more accessible because we are equally well dispersed and therefore capable of providing vision care services to everyone.

We share the Minister's concern that freedom of choice in health care be maintained. We wish to ensure that no one health profession unilaterally replace an existing health profession with its own model of assistant to provide services already legislated to other providers of health.

Monopoly in health care, we feel, is not in the public's best interest. It is the service that should be insured, not the provider.

Finally, we are recommending that the Government make a provision for an optometric consultant to achieve, in Canada, a level of vision care that is equal to the level of health care sought by the proposed Canada Health Act.

Our desire for you, the elected Members of Parliament, in cooperation with all interested groups, is to achieve an Act that will be beneficial and fair to all those concerned, a true Health Act for the People of Canada.

Faits saillants presentés par le Président Dr. Roland des Groseilliers du Mémoire de l'A.C.O. presenté au Comité Permanent de la Santé, du Bien-Être Social et des Affaires Sociales en Réponse au Projet de Loi sur la Santé au Canada.

Monsieur le Président, Messieurs et Mesdames les Membres du Comité, nous vous remercions de l'occasion que vous nous offrez de présenter nos vues sur le Projet de Loi C-3.

Nous manquerions à notre devoir si nous ne profitions pas de cette occasion pour reconnaître le dévouement et la contribution des nombreux groupes et particuliers qui, par ce processus, visent à instaurer un meilleur système de santé pour tous les Canadiens.

À titre de Président d'une Association représentant quelques 2 300 professionnels qui offrent des services d'optométrie à sept millions de Canadiens chaque année, dans le cadre de la présente Loi sur les Soins Médicaux, nous espérons que cette présentation contribuera à améliorer les services de santé offerts aux Canadiens.

Ce qui nous préoccupe le plus dans le Projet de Loi Canadienne sur la Santé c'est qu'une disposition vitale de la Loi sur les Soins Médicaux n'a pas été retenue dans le Projet de Loi, une disposition, insérée dans la Loi il y a dix-huit ans grâce aux efforts des optométristes et reconnue par le Premier Ministre d'alors, Lester B. Pearson, une disposition qui prévoit, et je cite: "Pour des services de santé additionnels, y compris les services optométriques", une disposition qui assure la flexibilité des programmes d'assurance-maladie.

L'Article 4(3) autorise spécifiquement la couverture des services de santé par les divers régimes d'assurance-maladie du pays. Par conséquent, nous recommandons que l'Article 4(3) soit retenu dans le Projet de Loi Canadienne sur la Santé. Cela constituerait une garantie contre toute diminution de services.

Nous recommandons d'autres modifications à l'Article 2 de la nouvelle Loi, de façon à éviter toute interruption des services actuellement offerts par les optométristes aux Canadiens en vertu des programmes existants.

Plus de 60 % des soins de la vue sont dispensés par des optométristes. En raison de la dispersíon de la population, les Canadiens jugent que les optométristes sont davantage accessibles, car, eux aussi étant dispersés, ils sont en mesure de fournir les soins requis à tous et chacun.

Nous partageons la volonté du Ministre que la liberté de choix dans les soins de santé soit maintenue. Toutefois, nous désirons nous assurer qu'aucune profession de la santé ne puisse remplacer unilatéralement une autre profession de la santé existante par son propre personnel d'assistants, pour fournir des services déjà dispensés par un autre corps de professionnels jouissant d'un statut légal.

Nous sommes d'avis que le monopole dans les soins de santé n'est pas dans l'intérêt public. Ce qui doit être assuré, c'est le service, et non le professionnel.

En dernier lieu, nous recommandons que le Gouvernement prévoit une disposition pour les optométristes consultants, afin d'offrir aux Canadiens des soins de la vue d'une qualité égale à celle que le Projet de Loi Canadienne sur la Santé cherche à assurer pour les soins de santé.

Ce que nous attendons des Membres du Parlement, en collaboration avec toutes les parties intéressées, c'est une Loi qui sera juste et équitable pour tous, une véritable Loi sur la Santé qui profitera à tous les Canadiens.

BRIEF
TO
THE HOUSE OF COMMONS
STANDING COMMITTEE
ON
HEALTH, WELFARE AND SOCIAL AFFAIRS
IN RESPONSE TO
THE PROPOSED
CANADA HEALTH ACT

CANADIAN ASSOCIATION OF OPTOMETRISTS
Suite 207 - 77 Metcalfe St.
Ottawa, Ontario
K1P 5L6

February 1984

RECOMMENDATIONS

The Canadian Association of Optometrists has given consideration to the Canada Health Act and recommends as follows:

Recommendation 1

SECTION 4(3) OF THE EXISTING MEDICAL CARE ACT BE INCORPORATED INTO THE CANADA HEALTH ACT AS A SECTION UNDER THE HEADING "CASH CONTRIBUTIONS AND PAYMENTS". (P.5)

Recommendation 2

THE PRINCIPLE OF SECTION 4(3) OF THE MEDICAL CARE ACT BE CONTINUED IN THE NEW CANADA HEALTH ACT, BY THE AMENDMENT OF EXISTING DEFINITIONS INCLUDED IN SECTION 2 OF THE ACT AS FOLLOWS:

1. AMEND SECTION 2, BY INSERTING THE FOLLOWING IMMEDIATELY AFTER THE DEFINITION OF "DENTIST";

   "ELIGIBLE OPTOMETRICAL SERVICES" MEANS ANY OPTOMETRICALLY REQUIRED PROCEDURES, OTHER THAN PROCEDURES EXCLUDED BY THE REGULATIONS, PERFORMED BY AN OPTOMETRIST;

2. AMEND SECTION 2, BY AMENDING THE DEFINITION OF "INSURED HEALTH SERVICES" TO READ AS FOLLOWS:

   "INSURED HEALTH SERVICES" MEANS HOSPITAL SERVICES, PHYSICIAN SERVICES, ELIGIBLE SURGICAL-DENTAL SERVICES *AND ELIGIBLE OPTOMETRICAL SERVICES* PROVIDED TO INSURED PERSONS, BUT DOES NOT INCLUDE ANY HEALTH SERVICES THAT A PERSON IS ENTITLED TO AND ELIGIBLE FOR UNDER ANY OTHER ACT OF PARLIAMENT OR UNDER ANY ACT OF THE LEGISLATURE OF A PROVINCE THAT RELATES TO WORKERS' OR WORKMEN'S COMPENSATION;

3. AMEND SECTION 2 BY INSERTING THE FOLLOWING IMMEDIATELY AFTER THE DEFINITION OF "MINISTER":

   "OPTOMETRIST" MEANS A PERSON LAWFULLY ENTITLED TO PRACTISE OPTOMETRY IN THE PLACE IN WHICH THE PRACTICE IS CARRIED ON BY THAT PERSON;

A FURTHER AMENDMENT SHOULD BE MADE TO SECTION 22 (THE SECTION GIVING THE GOVERNOR IN COUNCIL THE POWER TO MAKE REGULATION), BY AMENDING SUB-PARAGRAPH (A) TO READ AS FOLLOWS:

"(a) PRESCRIBING THE PROCEDURES EXCLUDED FROM ELIGIBLE SURGICAL-DENTAL SERVICES *AND FROM ELIGIBLE OPTOMETRICAL SERVICES;*

MOREOVER, SECTION 2 DEFINITION OF "EXTRA-BILLING, AND SECTIONS 12(c), 18 AND 20(1) WOULD REQUIRE CONSEQUENTIAL AMENDMENTS TO INCLUDE, IN EACH CASE, "OPTOMETRISTS" ALONG WITH "MEDICAL PRACTITIONERS OR DENTISTS".

Recommendation 3

ONE HEALTH PROFESSION NOT BE PERMITTED TO UNILATERALLY CREATE ASSISTING PERSONNEL WHO ACT AS PROFESSIONALLY CONTROLLED REPLACEMENTS FOR EXISTING PROFESSIONS WHICH HAVE LEGAL STATUS, LICENSURE AND PUBLIC ACCEPTANCE WITHIN THE PRESENT DELIVERY OF HEALTH CARE.

MÉMOIRE
PRÉSENTÉ
AU COMITÉ PERMANENT
DE LA
SANTÉ, DU BIEN-ÊTRE SOCIAL ET DES AFFAIRES SOCIALES
EN RÉPONSE AU
PROJET DE LOI
SUR LA SANTÉ AU CANADA

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Février 1984

RECOMMANDATIONS

Après étude de la Loi canadienne sur la santé, l'Association canadienne des optométristes fait les recommendations suivantes:

Recommandation 1

QUE L'ARTICLE 4(3) DE L'ACTUELLE LOI SUR LES SOINS DE SANTÉ DEVIENNE UN ARTICLE DE LA LOI CANADIENNE SUR LA SANTÉ, SOUS LA RUBRIQUE "CONTRIBUTIONS PÉCUNIÈRES ET VERSEMENTS" (P. 5).

Recommandation 2

QUE LE PRINCIPE DE L'ARTICLE 4(3) SOIT PRÉSERVÉ DANS LA NOUVELLE LOI CANADIENNE SUR LA SANTÉ EN MODIFIANT LES DÉFINITIONS DE L'ARTICLE DE LADITE LOI COMME SUIT:

1. MODIFIER L'ARTICLE 2, EN INSÉRANT LA DÉFINITION SUIVANTE IMMÉDIATEMENT APRÈS LA DÉFINITION DE "SERVICES DE SANTÉ ASSURÉS":

   "SERVICES D'OPTOMÉTRIE ADMISSIBLES": ACTES D'OPTOMÉTRIE NÉCESSAIRES SUR LE PLAN OPTOMÉTRIQUE, ACCOMPLIS PAR UN OPTOMÉTRISTE, À L'EXCEPTION DES ACTES EXCLUS PAR LES RÈGLEMENTS.

2. MODIFIER L'ARTICLE 2 EN MODIFIANT LA DÉFINITION DE "SERVICE DE SANTÉ ASSURÉS" DE LA FAÇON SUIVANTE:

   "SERVICES DE SANTÉ ASSURÉS" SERVICES HOSPITALIERS, MÉDICAUX, DE CHIRURGIE DENTAIRE ADMISSIBLES *OU D'OPTOMÉTRIE ADMISSIBLES* FOURNIS AUX ASSURÉS, À L'EXCEPTION DES SERVICES DE SANTÉ AUXQUELS UNE PERSONNE A DEOIT OU EST ADMISSIBLE EN VERTU D'UNE AUTRE LOI FÉDÉRALE OU D'UNE LOI PROVINCIALE RELATIVE AUX ACCIDENTS DU TRAVAIL.

3. MODIFIER L'ARTICLE 2 EN INSÉRANT LA DÉFINITION SUIVANTE IMMÉDIATEMENT APRÈS LA DÉFINITION DE "MINISTRE":

   "OPTOMÉTRISTE": PERSONNE LÉGALEMENT AUTORISÉE À EXERCER L'OPTOMÉTRIE AU LIEU OÙ ELLE SE LIVRE À CET EXERCICE.

NOUS PROPOSONS AUSSI UNE AUTRE MODIFICATION À L'ARTICLE 22 (L'ARTICLE QUI DONNE AU GOUVERNEUR EN CONSEIL LE POUVOIR D'ÉDICTER DES RÈGLEMENTS), EN MODIFIANT L'ALINÉA a) POUR QU'IL SE LISE COMME SUIT:

a) DÉTERMINER LES ACTES EXCULS DES SERVICES DE CHIRURGIE DENTAIRE ADMISSIBLES ET DES SERVICES D'OPTOMÉTRIE ADMISSIBLES."

IL S'ENSUIT QU'IL FAUDRAIT MODIFIER LA DÉFINITION DE "SUFRACTURATION" À L'ARTICLE 2, AINSI QUE LES ARTICLES 12c), 18 ET 20(1) POUR Y JOINDRE, DANS CHAQUE CAS, LE TERME "OPTOMÉTRISTES" AU TERME MÉDECINS OU DENTISTES".

Recommandation 3

QU'UNE PROFESSION DE LA SANTÉ NE PUISSE CRÉER UNILATÉRALEMENT UN PERSONNEL D'ASSISTANTS QUI REMPLACENT, SOUS CONTRÔLE PROFESSIONNEL, DES PROFESSIONS EXISTANTES QUI JOUISSENT D'UNE RECONNAISSANCE ET D'UN STATUT LÉGAUX ET DE L'ACCEPTATION PUBLIQUE DANS LE CADRE DU PROGRAMME ACTUEL D'ASSURANCE-MALADIE.

Recommendation 4

INCLUSION OF "OPTOMETRIC SERVICES" PROVIDED BY OPTOMETRISTS, WITHIN THE PROPOSED DEFINITIONS OF INSURED HEALTH SERVICES WITHIN THE CANADA HEALTH ACT.

Recommendation 5

SERIOUS CONSIDERATION BE GIVEN TO THE DEVELOPMENT OF A FORMAL MECHANISM TO ENSURE THAT AVAILABLE PRIMARY HEALTH CARE MANPOWER RESOURCES AND SERVICES ARE FULLY UTILIZED, ON AN INSURED BASIS.

Recommendation 6

INTRODUCTION OF UNIT BILLING COST-SHARING FOR HEALTH CARE SERVICES, REGARDLESS OF WHICH QUALIFIED AND LEGALLY LICENSED PRACTITIONER PROVIDES THEM.

Recommendation 7

THAT THE APPOINTMENT OF AN OPTOMETRIC CONSULTANT TO THE MINISTER OF HEALTH WELFARE AND SOCIAL SERVICES BE CONSIDERED SO THAT THE DELIVERY OF VISION CARE SERVICES IN CANADA CAN BE ASSESSED TO IDENTIFY THE INADEQUACIES IN THE EXISTING VISION CARE SERVICES DELIVERY SYSTEM.

Canadian Association of Optometrists
Brief to the
House of Commons Standing Committee on
Health, Welfare and Social Affairs

Mr. Chairman, Members of the Committee,

Thank you for the kind invitation to share this Association's concerns with respect to the Canadian health care system in general and Bill C-3 in particular.

The Canadian Association of Optometrists congratulates all three Canadian federal political parties for their continued efforts and dedication to health of Canadians.

As an Association which represents a group of 2,300 practitioners who annually serve the vision care needs of some 7,000,000 Canadians as an integral part of the present Medical Care Act, it is our hope that this presentation will serve in some small way to enhance the delivery of health care to Canadians.

The Canadian Association of Optometrists is both pleased with, and in support of, the objectives stated in Sections 3(1) and 3(2) of the Canada Health Act, that is:

> (1) . . . that the primary objective of Canadian Health Care policy is to protect, promote and restore the physical and mental well-being of residents of Canada.
>
> (2) It is hereby declared that Canadian health care policy should be designed and administered
> (a) to encourage effective allocation of the nation's health resources;
> (b) to facilitate the provision of adequate health services throughout Canada; and
> (c) to facilitate reasonable access to health services without undue financial or other barriers.

However, it is our hope that the inception of the Canada Health Act will not jeopardize the progress achieved in the continuing integration of optometry and other health care professions under provincial health care plans of Canada.

The Canadian Association of Optometrists suggests that, unless optometrists and other professions are included in the Canada Health Act, the primary objective will not be met, nor will effective allocation of health resources be achieved. Unless optometrists are defined in this Act, the provision of adequate vision care services cannot occur. Furthermore, adequate access to vision care services without "undue financial or other barriers" will not be achieved.

It was the Canadian Association of Optometrists who, in 1966, identified and recommended the need for an amendment to the Medical Care Act in its latter stages of development. This amendment, (Section 4(3) of the Medical Care Act) made it possible to bring under the Plan additional health services, including optometrical services.

Recommandation 4

QUE LES "SERVICES OPTOMÉTRIQUES" RENDUS PAR LES OPTOMÉTRISTES SOIENT INCLUS DANS LA DÉFINITION PROPOSÉE DES SERVICES DE SANTÉ ASSURÉS DANS LA LOI CANADIENNE SUR LA SANTÉ.

Recommandation 5

QU'ON ENVISAGE SÉRIEUSEMENT L'ÉLABORATION D'UN MÉCANISME FORMEL POUR ASSURER L'UTILISATION COMPLÈTE, SOUS FORME DE SERVICE ASSURÉS, DES RESSOURCES ET SERVICES OFFERTS PAR LES PROFESSIONNELS DE LA SANTÉ.

Recommandation 6

QUE SOIT INTRODUITE LA FACTURATION UNITAIRE À COÛTS PARTAGÉS POUR LES SERVICES DE SANTÉ FOURNIS PAR QUELQUE PROFESSIONNEL QUE CE SOIT, POURVU QU'IL SOIT QUALIFIÉ ET LÉGALEMENT AUTORISÉ À PRATIQUER.

Recommandation 7

QU'ON ÉTUDIE LA POSSIBILITÉ DE NOMMER UN OPTOMÉTRISTE-CONSEIL AUPRÈS DU MINISTRE DE LA SANTÉ ET DU BIEN-ÊTRE SOCIAL, AFIN D'ÉVALUER LA PRESTATION DES SOINS OCULAIRES AU CANADA POUR EN IDENTIFIER LES LACUNES.

Association canadienne des optométristes
Mémoire présenté au Comité
permanent de la santé, du bien-être social et des
affaires sociales de la Chambre des communes

Monsieur le président, mesdames et messieurs les membres du Comité, Nous vous remercions de l'occasion que vous donnez à notre association de présenter ses vues sur le système canadien de santé en général, et sur le projet de loi C-3 en particulier.

L'Association canadienne des optométristes félicite les trois partis fédéraux pour leur attachement à la santé des Canadiens et les efforts continus qu'ils y consacrent.

En tant qu'association représent quelque 2 300 professionnels qui offrent des services d'optométrie à 7 000 000 de Canadiens, dans le cadre de la présente Loi sur les soins médicaux, nous espérons que cette présentation contribuera à améliorer les services de santé offerts aux Canadiens.

L'Association canadienne des optométristes partage et appuie les objectifs énoncés aux articles 3(1) et 3(2) de la Loi canadienne sur la santé, à savoir:

> (1) . . . la politique canadienne de la santé a pour premier objectif de protéger, de favoriser et d'améliorer le bien-être physique et mental des habitants du Canada.
>
> (2) La politique canadienne de la santé a pour objectifs complémentaires:
> a) de rationaliser l'affectation des ressources du pays en matière de santé;
> b) de faciliter la prestation de services de santé convenables à l'échelle du pays;
> c) de faciliter un accès satisfaisant aux services de santé, sans obstacle indu d'ordre financier ou autre.

Toutefois, nous osons espérer que l'application de la Loi canadienne sur la santé ne mettra pas en danger les progrès réalisés dans l'intégration de l'optométrie et des autres professions de la santé dans le cadre des régimes provinciaux d'assurance-maladie.

L'Association canadienne des optométristes est d'avis que l'objectif premier de la Loi canadienne sur la santé ne sera pas atteint et que la rationalisation de l'affectation des ressources en matière de santé ne sera pas possible, à moins que les optométristes et les autres professionnels de la santé n'y soient inclus. Et à moins que les optométristes ne fassent l'objet d'un définition dans cette loi, la prestation de services de santé convenables ne pourra avoir lieu. Qui plus est, l'accès satisfaisant aux services d'optométrie sans "obstacle indu d'ordre financier ou autre" ne sera pas possible.

C'est l'Association canadienne des optométristes qui a identifié et recommandé, en 1966, la nécessité de modifier la Loi sur les soins médicaux durant les dernières phases de son élaboration. Cette modification (article 4(3) de la Loi sur les soins médicaux) a permis aux régimes d'assurance-maladie d'incorporer un certain nombre d'autres services de santé, dont les services d'optométrie.

The Canadian Association of Optometrists fully endorses and supports the objectives outlined in the preamble of the Canada Health Act, but we contend that in order to achieve the defined goals, *it is vital that Section 4(3) of the existing Medical Care Act, i.e.:*

> "In the application of this Act to a health care insurance plan established by an Act of the legislature of a province, any health services of a kind prescribed by the Minister to be required health services rendered by a person lawfully entitled to render such services in the place where they are so rendered shall, under such terms and conditions as may be specified by the Governor in Council and if the Provincial law so provides, be deemed to be services rendered by a medical practitioner that are medically required."

be retained in the new Canada Health Act. We further contend that if this section is not retained in the new Canada Health Act, the net result will be one of decreasing the present level of service of the existing health insurance program.

Recommendation 1

Therefore we recommend that:

> SECTION 4(3) OF THE EXISTING MEDICAL CARE ACT BE INCORPORATED INTO THE CANADA HEALTH ACT AS A SECTION UNDER THE HEADING "CASH CONTRIBUTIONS AND PAYMENTS". (P.5)

Recommendation 2

The Canadian Association of Optometrists further recommends that:

> THE PRINCIPLE OF SECTION 4(3) OF THE MEDICAL CARE ACT BE CONTINUED IN THE NEW CANADA HEALTH ACT, BY THE AMENDMENT OF EXISTING DEFINITIONS INCLUDED IN SECTION 2 OF THE ACT AS FOLLOWS:
>
> 1. AMEND SECTION 2, BY INSERTING THE FOLLOWING IMMEDIATELY AFTER THE DEFINITION OF "DENTIST"
>
>   *"ELIGIBLE OPTOMETRICAL SERVICES" MEANS ANY OPTOMETRICALLY REQUIRED PROCEDURES, OTHER THAN PROCEDURES EXCLUDED BY THE REGULATIONS, PERFORMED BY AN OPTOMETRIST;"*
>
> 2. AMEND SECTION 2, BY AMENDING THE DEFINITION OF "INSURED HEALTH SERVICES" TO READ AS FOLLOWS:
>
>   "INSURED HEALTH SERVICES" MEANS HOSPITAL SERVICES, PHYSICIAN SERVICES, ELIGIBLE SURGICAL-DENTAL SERVICES *AND ELIGIBLE OPTOMETRICAL SERVICES* PROVIDED TO INSURED PERSONS, BUT DOES NOT INCLUDE ANY HEALTH SERVICES THAT A PERSON IS ENTITLED TO AND ELIGIBLE FOR UNDER ANY OTHER ACT OF PARLIAMENT OR UNDER ANY ACT OF THE LEGISLATURE OF A PROVINCE THAT RELATES TO WORKERS' OR WORKMEN'S COMPENSATION;
>
> 3. AMEND SECTION 2, BY INSERTING THE FOLLOWING IMMEDIATELY AFTER THE DEFINITION OF "MINISTER":
>
>   *"OPTOMETRIST" MEANS A PERSON LAWFULLY ENTITLED TO PRACTISE OPTOMETRY IN THE PLACE IN WHICH THE PRACTICE IS CARRIED ON BY THAT PERSON;*

A FURTHER AMENDMENT SHOULD BE MADE TO SECTION 22 (THE SECTION GIVING THE GOVERNOR IN COUNCIL THE POWER TO MAKE REGULATIONS), BY AMENDING SUB-PARAGRAPH (a) TO READ AS FOLLOWS:

> "(a) PRESCRIBING THE PROCEDURES EXCLUDED FROM ELIGIBLE SURGICAL-DENTAL SERVICES *AND ELIGIBLE OPTOMETRICAL SERVICES;*

MOREOVER, SECTION 2 DEFINITION OF "EXTRA-BILLING", AND SECTIONS 12(c), 18 and 20(1) WOULD REQUIRE CONSEQUENTIAL AMENDMENTS TO INCLUDE, IN EACH CASE, *"OPTOMETRISTS"* ALONG WITH "MEDICAL PRACTITIONER OR DENTISTS".

It is the belief of the Canadian Association of Optometrists that Canadians would be better served by the use of the term "health care practitioners" where "medical practitioners" is now used in the proposed Canada Health Act. It should be left to provincial governments to determine the precise definition of a "health care practitioner". This would allow the provinces to retain basic jurisdiction over health care policies.

L'Association canadienne des optométristes souscrit aux objectifs énoncés dans la préambule de la Loi canadienne sur la santé et les appuie entièrement, mais elle fait valoir que, pour atteindre les objectifs ainsi définis, *il est vital que l'article 4(3) de l'actuelle Loi sur les soins médicaux, c.-à-d.*

> "Dans l'application de la présente Loi à un régime établi par un loi de la législature d'une province, tous services de santé d'un genre que le Ministre prescrit être des services de santé requis fournis par une personne légalement autorisée à rendre de tels service dans le lieu où ils sont ainsi rendus doivent, conformément aux conditions et modalités établies par le gouverneur en conseil et si la loi provinciale y pourvoit ainsi, être considérés comme des services rendus par un médecin et requis au point de vue médical."

soit retenu dans la nouvelle Loi canadienne sur la santé. En outre nous soutenons que le fait de ne pas inclure cet article dans la nouvelle loi se traduira par un diminution du niveau de service actuellement offert par les programmes existants d'assurance-maladie.

Recommandation 1

Par conséquent, nous recommandons:

> QUE L'ARTICLE 4(3) DE L'ACTUELLE LOI SUR LES SOINS DE SANTÉ DEVIENNE UN ARTICLE DE LA LOI CANADIENNE SUR LA SANTÉ, SOUS LA RUBRIQUE "CONTRIBUTIONS PÉCUNIÈRES ET VERSEMENTS" (P. 5).

Recommandation 2

De plus, l'Association canadienne des optométristes recommande que:

> LE PRINCIPE DE L'ARTICLE 4(3) SOIT PRÉSERVÉ DANS LA NOUVELLE LOI CANADIENNE SUR LA SANTÉ EN MODIFIANT LES DÉFINITIONS DE L'ARTICLE 2 DE LADITE LOI COMME SUIT:
>
> 1. MODIFIER L'ARTICLE 2, EN INSÉRANT LA DÉFINITION SUIVANTE IMMÉDIATEMENT APRÈS LA DÉFINITION DE "SERVICES DE SANTÉ ASSURÉS":
>
>   *"SERVICES D'OPTOMÉTRIE ADMISSIBLES": ACTES D'OPTOMÉTRIE NÉCESSAIRES SUR LE PLAN OPTOMÉTRISTE, À L'EXCEPTION DES ACTES EXCLUS PAR LES RÈGLEMENTS.*
>
> 2. MODIFIER L'ARTICLE 2 EN MODIFIANT LA DÉFINITION DE "SERVICES DE SANTÉ ASSURÉS DE LA FAÇON SUIVANTE:
>
>   "SERVICES DE SANTÉ ASSURÉS": SERVICES HOSPITALIERS, MÉDICAUX, DE CHIRURGIE DENTAIRE ADMISSIBLES *OU D'OPTOMÉTRIE ADMISSIBLES* FOURNIS AUX ASSURÉS, À L'EXCEPTION DES SERVICES DE SANTÉ AUXQUELS UNE PERSONNE A DROIT OU EST ADMISSIBLE EN VERTU D'UNE AUTRE LOI FÉDÉRALE OU D'UNE LOI PROVINCIALE RELATIVE AUX ACCIDENTS DU TRAVAIL.
>
> 3. MODIFIER L'ARTICLE 2 EN INSÉRANT LA DÉFINITION SUIVANTE IMM3DIATEMENT APRÈS LA DÉFINITION DE "MINISTRE":
>
>   *"OPTOMÉTRISTE": PERSONNE LÉGALEMENT AUTORISÉE À EXERCER L'OPTOMÉTRIE AU LIEU OU ELLE SE LIVRE À CET EXERCICE.*

NOUS PROPOSONS AUSSI UNE AUTRE MODIFICATION À L'ARTICLE 22 (L'ARTICLE QUE DONNE AU GOUVERNEUR EN CONSEIL LE POUVOIR D'ÉDICTER DES RÈGLEMENTS), EN MODIFIANT L'ALINÉA a) POUR QU'IL SE LISE COMME SUIT:

> "a) DÉTERMINER LES ACTES EXCLUS DES SERVICES DE CHIRURGIE DENTAIRE ADMISSIBLES ET *DES SERVICES D'OPTOMÉTRIE ADMISSIBLES.*"

IL S'ENSUIT QU'IL FAUDRAIT MODIFIER LA DÉFINITION DE "SURFACTURATION" À L'ARTICLE 2, AINSI QUE LES ARTICLES 12c), 18 ET 20(1) POUR Y JOINDRE, DANS CHAQUE CAS, LE TERME *"OPTOMÉTRISTES"* AU TERME "MÉDECINS OU DENTISTES".

L'Association canadienne des optométristes croit que les Canadiens auraient un meilleur service si le terme "professionnels de la santé" était utilisé dans la Loi canadienne sur la santé à la place du terme "médecins". On devrait laisser aux gouvernements provinciaux le soin de définir précisément le terme "professionnels de la santé". Cela garantirait aux provinces leur champ de compétence en matière de santé. En utilisant une définition générale, comme "professionnels de la santé", les

By employing a general definition, such as "health care practitioners", provincial governments would be in the position to determine which professions would provide insured services under the Act. Furthermore, the provinces would also decide the health care facilities in which such services would be provided.

THE NATURE OF SERVICES

That the optometrist and optometrical services are required in the health care system has been demonstrated by the extent of the utilization of optometrical personnel and services by the public. This need is also demonstrated by the inclusion of optometrists, and optometrical services, in the medicare payments of all provinces in Canada, except Prince Edward Island. The provincial governments recognized the need and desire for such services and responded to their electorates by providing coverage of optometrical services. There is little doubt that accessibility to such services, due to the wide distribution of optometrists,[1] was an important factor in optometrical services' being included in health care payments. The report of the Royal Commission on Health Services in Canada 1962[2], recognized the necessity of well-educated and trained optometrical manpower and made recommendations to the federal government for bringing about such improvements. The Ontario Committee on the Healing Arts[1] also recognized the necessity for optometrical manpower and services in the following statement:

> "The exclusive use of ophthalmologists for vision care services is both impractical and wasteful of highly trained specialists. This makes it all the more imperative that decisions be made to improve the present and future effectiveness of optometrists in the health delivery system."

To be effective in the health care system, optometrists and their services must be fully integrated into the health care system and health care institutions. Indeed, until such integration occurs many persons in need of vital vision care services will continue to be without vision care. Furthermore, such integration will improve the quality of health care delivery since it will be an elementary factor in improving the coordination and cooperation between optometrists, ophthalmologists, other medical specialties, family practice physicians and other health care professionals.[3]

SETTINGS AND THE EMPLOYMENT OF TECHNOLOGY

Integration of optometrical services is required in the following public institutions:

1. Hospitals
2. Chronic Care Hospitals and Facilities
3. Nursing and residential homes and geriatric centres
4. Public health organizations and their programs
5. Centres for the mentally retarded and physically handicapped.

The advent of increasing the scientific knowledge of vision physiology and ocular structure, as well as advances in technology, provides an impetus and urgency to bring about such integration. Optometrical education includes both the scientific knowledge and training in the application of related technology which can contribute to the prevention, detection, diagnosis and treatment of vision anomalies as well as the rehabilitation of those with disease and trauma-induced visual impairments not amenable to medical or surgical procedures.

The optometrical role in hospitals has been well demonstrated in both the United States[4] and Great Britain[5]. The American Optometric Association[6] reports that 30% of public hospitals in the United States have staff optometrists and reports in the American Journal of Public Health[7,8] documented that nearly 50% of New York State Hospitals have staff optometrists.

Optometrists are involved in a considerable number of what the Canada Health Act identifies as extended health care facilities. While the optometrical role in Canadian hospitals has been amply demonstrated, the application of this role on the Canadian health care scene is currently not implemented to an accepted level.

Important and useful technology has recently increased optometrical capability to offer early preventive care to infants and young children.

Such technological advances as visually evoked responses, electro-retinograms, contrast sensitivity measures, photodocumentation of the external and internal eye, dynamic and static visual field measurements, laser interferometry and other techniques can also be of great use in the prevention, maintenance and rehabilitation of vision anomalies of elderly persons.

gouvernements provinciaux seraient en mesure de déterminer quelles professions pourraient fournir des services assurés en vertu de la loi. En outre, les provinces pourrait aussi décider dans quelles institutions de santé ces services pourraient être fournis.

NATURE DES SERVICES

L'utilisation généralisée, par le public, des services d'optométrie témoigne de leur raison d'être dans le système de santé. Cette raison d'être est aussi démontrée par l'inclusion des optométristes, et des services d'optométrie, dans les régimes d'assurance-maladie de toutes les provinces du Canada, sauf l'Île-du-Prince-Édouard. Les gouvernements provinciaux ont reconnu la nécessité de ces services et ont répondu au désir de leurs commettants en étendant les régimes d'assurance-maladie aux services optométriques. L'accessibilité de ces services, rendue possible grâce à une plus grande disponibilité des optométristes[1], a certes joué un rôle important dans l'inclusion des services optométriques dans les régimes d'assurance-maladie. Le rapport de la Commission royale sur les services de santé au Canada de 1962[2] reconnaissait la nécessité d'accroître le corps d'optométristes compétents et formés adéquatement et recommandait au gouvernement fédéral de prendre des mesures en ce sens. L'Ontario Committee on the Healing Arts[1] reconnaissait aussi la nécessité des services optométriques et d'un professionnel compétent, comme en témoigne le passage suivant:

> "Le recours exclusif aux ophtalmologistes pour les services de santé oculaire est peu pratique et résulte en un gaspillage de spécialistes hautement qualifiés. Il est donc impératif d'améliorer l'efficacité présente et future des optométristes dans le cadre du programme de prestation de soins de santé."

Pour fonctionner efficacement au sein du système de santé, les optométristes et leurs services doivent être entièrement intégrés à ce système et aux institutions de santé. D'ailleurs, de nombreuses personnes qui ont un besoin vital de soins oculaires ne pourront les obtenir tant que l'intégration n'aura pas eu lieu. De plus, cette intégration améliorera la qualité de la prestation des soins de santé, car elle constituera un facteur primordial pour améliorer la coordination et la coopération entre les optométristes, les ophthalmologistes, les médecins spécialistes, les médecins de famille et les autres professionnels de la santé[3].

MISE EN PLACE ET UTILISATION DE LA TECHNOLOGIE

L'Intégration des services optométriques est requise dans les institutions publiques suivantes:

1. les hôpitaux;
2. les institutions pour malades chroniques;
3. les résidences et foyers d'accueil et les centres gériatriques;
4. les organisations publiques de santé et leurs programmes;
5. les centres pour handicapés mentaux et physiques.

Grâce à une meilleure connaissance scientifique de la physiologie de la vision et de la structure oculaire et aux progrès technologiques, une telle intégration se révèle maintenant urgente. La formation des optométristes comprend la connaissance scientifique et l'utilisation des technologies connexes qui peuvent contribuer à la prévention, de la détection, au diagnostic et au traitement des troubles de la vision, ainsi qu'au rétablissement des personnes souffrant de maladies de l'oeil ou de problèmes visuels causés par des traumatismes et pour lesquels l'acte médical ou chirurgical ne peut rien.

Le rôle de l'optométrie dans les hôpitaux a déjà été bien démontré tant aux États-Unis[4] qu'en Grande-Bretagne[5]. L'American Optometric Association[6] signale que 30 % des hôpitaux publics des États-Unis comptent des optométristes au sein de leur personnel professionnel; selon l'American Journal of Public Health[7,8] près de 50 % des hôpitaux de l'État de New York comptent des optométristes dans leur personnel.

Les optométristes sont actifs dans un nombre considérable d'institutions que la Loi canadienne sur la santé identifie comme services complémentaires de santé. Bien que le rôle des optométristes dans les hôpitaux canadiens ait déjà été amplement démontré, il jouit d'une reconnaissance insuffisante sur la scène canadienne des soins de santé.

Des progrès technologiques importants et utiles ont récemment accru la capacité des optométristes à offrir des soins préventifs et hâtifs aux bébés et aux jeunes enfants. En outre, la prévention, la stabilisation et le traitement des troubles oculaires chez les personnes âgées pourront profiter de ces progrès technologiques, dont les réponses évoquées visuellement, les électro-rétinogrammes, les mesures de sensibilité aux contrastes, la photodocumentation de l'oeil externe et interne, les mesures dynamiques et statiques du champ visuel, l'interférométrie par laser et autres.

The costs of such technology, while not sufficient to impose any substantial perturbation on the health care system in relation to the benefits conferred, are too great for individual practitioners to capitalize. Thus rapid and effective deployment of much technology useful in the delivering of vision care will be delayed unless optometrists have increased access to the spectrum of health care institutions previously outlined which provide appropriate settings for these technological resources.

The recognition of optometrical services as recommended in this brief will provide optometrists with access to such facilities and bring about their better integration within the health care team.

Currently, Canadian optometrical and ophthalmological training provides two groups of practitioners who are adequately trained to provide vision and eye care for Canadians.

The Canadian Association of Optometrists agrees with the statement of the Canadian Medical Association:

> "Canada has one of the best health care systems in the world. That system has worked because all of the partners in it have shared the responsibility for making it work. The maintenance of a quality system cannot be served by setting up areas of conflict between the partners involved. Changes to our health care system demand the best ideas, the most careful consideration, and the most creative solutions we are collectively capable of."[9]

While the ideal expressed by the Canadian Medical Association in the above newspaper advertisement is one we can support the insistence of medicine on the unilateral creation of two categories of assistants[10] without due consideration for the role and scope of nurses and optometrists appears to be in conflict with this ideal.

The special problems these disciplines share would be best resolved by assuming a complimentary rather than a competitive stance.

Recommendation 3

Therefore, it is the recommendation of the Canadian Association of Optometrists that:

> ONE HEALTH PROFESSION NOT BE PERMITTED TO UNILATERALLY CREATE ASSISTING PERSONNEL WHO ACT AS PROFESSIONALLY CONTROLLED REPLACEMENTS FOR EXISTING PROFESSIONS WHICH HAVE LEGAL STATUS, LICENSURE AND PUBLIC ACCEPTANCE WITHIN THE PRESENT DELIVERY OF HEALTH CARE.

UNIVERSALITY

The Canadian Association of Optometrists supports the federal proposal to include a requirement in the Canada Health Act that there be 100% coverage of qualified residents.

COMPREHENSIVENESS — Proposed Definitions — Insured Services

As one of the recognized primary health care professions and with reference to optometry's vital role in assessing and treating a patient's oculo-visual health requirements or referring as required, the Canadian Association of Optometrists strongly recommends:

Recommendation 4

> INCLUSION OF "OPTOMETRIC SERVICES" PROVIDED BY OPTOMETRISTS, WITHIN THE PROPOSED DEFINITIONS OF INSURED HEALTH SERVICES WITHIN THE CANADA HEALTH ACT.

It is the position of the Canadian Association of Optometrists that the reaffirmation of physicians as the sole point of entry to the health care system in the proposed Canada Health Act does not accurately reflect the reality of the availability of the other legally defined health care professions to achieve comprehensive utilization and allocation of health care services for the benefit of the Canadian public.

Recommendation 5

We therefore recommend:

> SERIOUS CONSIDERATION BE GIVEN TO THE DEVELOPEMENT OF A FORMAL MECHANISM TO ENSURE THAT AVAILABLE PRIMARY HEALTH CARE MANPOWER RESOURCES AND SERVICES ARE FULLY UTILIZED, ON AN INSURED BASIS..

Le coût de cette technologie est trop grand pour les professionnels individuels, mais il ne constitue pas un lourd fardeau pour le système des soins de santé, à la lumière des avantages qu'il représente. Ainsi, la mise en place d'une technologie utile pour la prestation des soins oculaires sera retardée, à moins que les optométristes ne disposent d'un accès plus grand aux diverses institutions de santé décrites ci-dessus, lesquelles sont les lieux appropriés pour la mise en place de ces ressources technologiques.

La reconnaissance des services optométriques, que nous recommandons dans ce mémoire, accordera aux optométristes l'accès à ces *installations* et faciliter à leur intégration au sein des équipes professionnelles de la santé.

Actuellement, la formation des optométristes et des ophtalmologistes canadiens permet à ces deux groupes de professionnels de fournir des soins oculaires adéquats aux Canadiens. L'Association canadienne des optométristes appuie la déclaration suivante de l'Association médicale canadienne:

> "Le Canada possède l'un des meilleurs programmes d'assurance-maladie au monde. Ce programme a bien fonctionné, car tous les partenaires ont partagé la responsabilité des efforts. L'apparition de conflits entre les partenaires est préjudiciable à la survie d'un programme de qualité. Pour modifier notre programme d'assurance-maladie, nous devrons y aller de nos meilleures idées, d'une analyse très prudente et des solutions les plus créatives"[9].

Bien que nous appuyons cet idéal, publié par l'Association médicale canadienne sous forme de message publicitaire dans un quotidien, l'insistance avec laquelle les médecins préconisent la création unilatérale de deux catégories d'assistants[10], sans tenir compte véritablement du rôle et de l'importance des infirmières et des optométristes, semble être en conflit avec cet idéal.

Les problèmes spéciaux que partagent ces disciplines pourront être mieux réglés en adoptant une attitude de complémentairité, au lieu d'une attitude de confrontation.

Recommandation 3

Par conséquent, l'Association canadienne des optométristes recommande:

> QU'UNE PROFESSION DE LA SANTÉ NE PUISSE CREÉR UNILATÉRALEMENT UN PERSONNEL D'ASSISTANTS QUI REMPLACENT, SOUS CONTRÔLE PROFESSIONNEL, DES PROFESSIONS EXISTANTES QUI JOUISSENT D'UNE RECONNAISSANCE ET D'UN STATUS LÉGAUX ET DE L'ACCEPTATION PUBLIQUE DANS LE CADRE DU PROGRAMME ACTUEL D'ASSURANCE-MALADIE.

UNIVERSALITÉ

L'Association canadienne des optométristes appuie la proposition fédérale à l'effet d'inclure dans la Loi canadienne sur la santé une clause assurant la protection universelle des résidents admissibles.

PORTÉE — Définition proposée de "services assurés"

À titre de représentant d'une des principales professions de la santé reconnues et à la lumière du rôle vital de l'optométrie pour évaluer et traiter les troubles oculo-visuels des patients ou les référer ailleurs au besoin, l'Association canadienne des optométristes recommande fortement:

Recommandation 4

> QUE LES "SERVICES OPTOMÉTRIQUES" RENDUS PAR LES OPTOMÉTRISTES SOIENT INCLUS DANS LA DÉFINITION PROPOSÉE DES SERVICES DE SANTÉ ASSURÉS DANS LA LOI CANADIENNE SUR LA SANTÉ.

L'Association canadienne des optométristes estime que l'identification des médecins comme seul point d'entrée dans le régime d'assurance-maladie, dans l'actuel projet de Loi canadienne sur la santé, ne reflète pas adéquatement la réalité, ni la disponibilité des autres professions de la santé reconnues par la loi, en vue d'assurer l'utilisation et l'affectation globales des services de santé à l'avantage des Canadiens.

Recommandation 5

Par conséquent, nous recommandons:

> QU'ON ENVISAGE SÉRIEUSEMENT L'ÉLABORATION D'UN MÉCANISME FORMEL POUR ASSURER L'UTILISATION COMPLÈTE, SOUS FORME DE SERVICES ASSURÉS, DES RESSOURCES ET SERVICES OFFERTS PAR LES PROFESSIONNELS DE LA SANTÉ.

ACCESSIBILITY

The recognition of optometric services in federal health care legislation will improve the health care system's comprehensiveness and will serve to facilitate increased accessibility to quality vision and eye care for Canadians.

To sustain the philosophy of increased public accessibility, through the inclusion of the primary health care professions in the new Canada Health Act, the Canadian Association of Optometrists also strongly recommends:

Recommendation 6

> INTRODUCTION OF UNIT BILLING COST-SHARING FOR HEALTH CARE SERVICES, REGARDLESS OF WHICH QUALIFIED AND LEGALLY LICENSED PRACTITIONER PROVIDES THEM.

As a result of the Medical Care Act restrictions which allowed cost-sharing only for the most expensive provider, the physician, provincial health Insurance Commissions were forced to respond to public demands for vision care services by introducing them as an extra benefit, paid for directly by the provincial government.

We recognize that the former federal government cost-sharing formula, based on payments for specific services has been replaced by a per capita system of block funding to provincial governments. We also recognize that, although the funding formula has changed, the federal guidelines for care, as expressed in the *Health Charter for Canadians,* have been retained as the norm to which all provincial governments must adhere. Based on the fact that optometric vision care is excluded from coverage in Prince Edward Island, and that the level of coverage for services between all of the other provinces is at significant variance, in terms of fiscal aspects and services covered, we must express serious reservation about the health care delivery system's ability to uniformly meet the vision care needs of the people of Canada. We observe that such visually at risk populations as the very young, aged persons, native peoples, disabled and partially-sighted persons required special consideration with respect to their vision care needs. We therefore recommend:

Recommendation 7

> THAT THE APPOINTMENT OF AN OPTOMETRIC CONSULTANT TO THE MINISTER OF HEALTH WELFARE AND SOCIAL SERVICES BE CONSIDERED SO THAT THE DELIVERY OF VISION CARE SERVICES IN CANADA CAN BE ASSESSED TO IDENTIFY THE INADEQUACIES IN THE EXISTING VISION CARE SERVICES DELIVERY SYSTEM.

PORTABILITY

The Canadian Association of Optometrists is in agreement with the principle that Canadian residents have the right to portability of their health care insurance. It is in this interest that Canadians must be able to have equivalent insured services across Canada. We support the proposal that better mechanisms be established for settling out-of-province claims, recognizing that such mechanisms' effectiveness will necessarily rely, at least in part, on the uniformity of insured service from the province.

BALANCE BILLING

While we ultimately support the position that there should be an end to the practice of balance billing by health care practitioners, we would seek the assurance from the Government that this end would not come in the form of a sudden imposition, but rather that an "adjustment period" or term of implementation would be instituted with the passage of the Act.

CONCLUSION

Mr. Chairman, Members of the Committee, we concur with the wisdom exhibited by Members of all parties in the House of Commons as recorded in Hansard, which apply to the issues before us:

> "The need (is) to provide leadership and incentives for moving the health care model with which medicare currently co-exists away from the present physician-dominated, curative model toward a more comprehensive, community-based preventative health care model . . ."
>
> Bill Blaikie
> N.D.P. Health Critic

"If you talk to any other health care professional you will find that health care professionals are not opposed to medicare. What they are deeply concerned about is the demographic reality that we will face as Canadians. They are concerned about care and the better use of health care professionals, and most of all, that the medical system can only survive and

ACCESSIBILITÉ

La reconnaissance des services optométriques dans la loi fédérale sur la santé rendra plus complet le système de santé, et assurera aux Canadiens une plus grande accessibilité à des soins oculaires et visuels de qualité.

Pour appuyer la philosophie d'une plus grande accessibilité, grâce à l'inclusion des principales professions de la santé dans la nouvelle Loi canadienne sur la santé, l'Association canadienne des optométristes recommande fortement:

Recommandation 6

> QUE SOIT INTRODUITE LA FACTURATION UNITAIRE À COÛTS PARTAGÉS POUR LES SERVICES DE SANTÉ FOURNIS PAR QUELQUE PROFESSIONNEL QUE CE SOIT, POURVU QU'IL SOIT QUALIFIÉ ET LÉGALEMENT AUTORISÉ À PRATIQUER.

À cause des restrictions de la Loi sur les soins médicaux qui n'autorise le partage des coûts que pour les services professionnels les plus dispendieux, soit ceux du médecin, les régies provinciales d'assurance-maladie ont du, suite aux demandes du public, étendre les régimes aux soins oculaires en les introduisant à titre d'avantages supplémentaires payés directement par les gouvernements provinciaux.

Nous reconnaissons le fait que l'ancienne formule fédérale de partage des coûts, basée sur le paiement pour des services spécifiques, a été remplacée par un système de paiement global par tête versé aux gouvernements provinciaux. Nous reconnaissons aussi le fait que, même si la formule de financement a changé, les directives fédérales enmatière de santé, présentées dans la *Charte de santé des Canadiens*, constituent toujours la norme à laquelle tous les gouvernements provinciaux doivent adhérer. Comme les soins optométriques ne sont pas couverts dans le régime d'assurance-maladie de l'Ile-du-Prince-Édouard et que le niveau de couverture des services varie sensiblement d'une province à l'autre, tant au point de vue fiscal qu'en termes des services assurés, nous exprimons de sérieuses réserves quant à la capacité du système de santé de satisfaire uniformément aux besoins optométriques des Canadiens. Nous devons noter que certains segments de la population plus susceptibles aux troubles de vision, comme les très jeunes enfants, les personnes âgées, les autochtones, les handicapés et les personnes jouissant d'une vue partielle, ont besoin d'une attention spéciale dup oint de vue optométrique. Par conséquent, nous recommandons:

Recommandation 7

> QU'ON ÉTUDIE LA POSSIBILITÉ DE NOMMER UN OPTOMÉTRISTE-CONSEIL AUPRÈS DU MINISTRE DE LA SANTÉ DU BIEN-ÊTRE SOCIAL, AFIN D'ÉVALUER LA PRESTATION DES SOINS OCULAIRES AU CANADA POUR EN IDENTIFIER LES LACUNES.

TRANSFÉRABILITÉ

L'Association canadienne des optométristes approuve le principe de transférabilité des prestations d'assurance-maladie. C'est dans cette optique que les Canadiens doivent pourvoir jouir de services assurés équivalents dans tout le Canada. Nous appuyons la proposition voulant que de meilleurs mécanismes soient établis pour régler les demandes de paiement hors-province, et nous reconnaissons ainsi que l'efficacité de ces mécanismes reposera nécessairement, du moins en partie, sur l'uniformité des services assurés par les provinces.

FACTURATION D'UNE PARTIE DES COÛTS

En définitive, nous appuyons la position voulant qu'on mette un terme à la facturation d'une partie des coûts par les professionnels de la santé; cependant, nous désirons obtenir l'assurance du gouvernement qu'on ne mettra pas fin abruptement à cette pratique, mais qu'il y aura plutôt une "période d'ajustement", de transition, qui entrera en vigueur avec l'adoption de la loi.

CONCLUSION

Monsieur le président et messieurs et mesdames les membres du Comité, nous partageons les avis exprimés par les membres des partis présents à la Chambre des communes sur la question qui nous préoccupe aujourd'hui.

> "Nous devons fournir un leadership et encourager le changement pour passer de l'actuel modèle de santé, à caractère curatif et dominé par les médecins, à un modèle de santé plus global, à caractère préventif et fondé sur la collectivité . . ."
>
> - Bill Blaikie
> Critique du NPD en matière de santé

"Si vous parlez à n'importe quel professionnel de la santé, vous vous rendrez compte que ces professionnels ne sont

be enhanced if there is cooperation between the federal Government and the provinces and health care professionals."

the Hon. Jake Epp
P.C. Health Critic

"Freedom of choice is a cornerstone of our Medicare system."

the Hon. Monique Bégin
Minister, Health, Welfare
and Social Services

To conclude, we can de no better than to reiterate a statement made by this Association in *1965* to then Health Minister, the Hon. Judy LaMarsh:

"The right of Canadians to free choice of practitioners and the orderly continuance and development of existing patterns of health care are agreed goals of any health care program. These have evolved over many years and are codified in the provincial statutes governing the practice of the various health professions. It is most essential that the entry of the federal government as a contributor to prepaid health care programs shall in no way violate those long established fundamental rights of the public and of the professions."

A Memorandum based on "Extracts from Statements by the Right Honourable Lester B. Pearson, Prime Minister of Canada at the Federal-Provincial Conference, Ottawa, July 19 and 20, 1965."

Presented to the Honourable Judy LaMarsh, Minister of National Health & Welfare, Ottawa, September 20, 1965 by the Canadian Association of Optometrists.

Respectfully submitted

The Canadian Association of Optometrists

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pas opposés à l'assurance-maladie. Ce qui les préoccupe fortement, c'est la réalité démographique à laquelle nous sommes confrontés en tant que Canadiens. Ce qui les préoccupe, ce sont les soins offerts et une meilleure utilisation des professionnels de la santé, et la plupart d'entre eux estiment que le système médical ne pourra survivre et être amélioré que si le gouvernement fédéral, les provinces et les professionnels de la santé font preuve d'esprit de coopération."

- l'hon. Jake Epp
Critique du PC en matière de santé

"La liberté de choix est une pierre angulaire de notre programme d'assurance-maladie."

- l'hon. Monique Bégin
Ministre, Santé, Bien-être et Services sociaux.

Pour conclure, nous réitérons à nouveau la position de notre association présentée en *1965* au ministre de la Santé d'alors, l'hon. Judy LaMarsh:

"Le droit des Canadiens au libre choix des professionnels traitants et la continuation et le développement ordonnés des concepts actuels de soins de santé sont des objectifs acceptés par tout programme de santé. Ces concepts sont le fruit d'une longue évolution et ils ont été codifiés dans les lois provinciales qui gouvernent la pratique des diverses professions de la santé. Il est essentiel que la venue du gouvernement fédéral à titre de contribuant aux programmes de soins de santé payés par l'État ne viole en aucune façon les droits fondamentaux et établis du public et des professionnels".

- Mémoire basé sur les "Extraits de déclarations du très honorable Lester B. Pearson, premier ministre du Canada, à l'occasion de la Conférence fédérale-provinciale tenue les 19 et 20 juillet 1965 à Ottawa."

Présenté par l'Association canadienne des optométristes à l'honorable Judy LaMarsh, ministre de la Santé et du Bien-être, Ottawa, le 20 septembre 1965.

Nous demeurons respectueusement vôtres.

L'Association canadienne des optométristes

Dr Roland des Groseillers, président

Dr Roy Brown, président sortant

Dr Emerson Woodruff, professeur, École d'optométrie, Université de Waterloo, membre de l'Association

Dr Ron Hansford, président sortant, Ontario Association of Optometrists membre de l'Association.

M. Gérard Lambert, directeur général.

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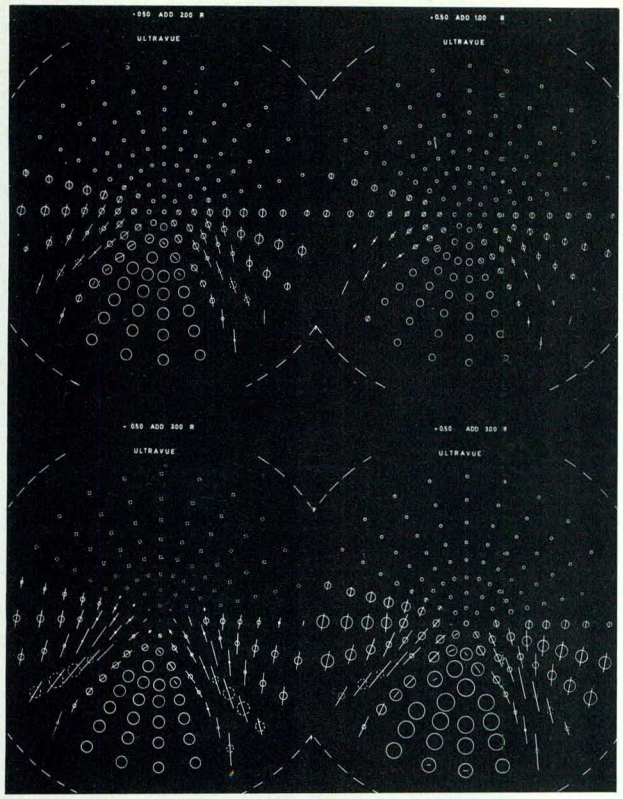

Variations de puissance sur des lentilles de type NZ. Les conditions de mesures et la description de la représentation graphique sont décrites dans le texte.

de près sur l'Ultravue, et la représentation graphique des résultats peut artificiellement augmenter l'étendue de la vision de près. D'autre part un écart de 15° entre les méridiens mesurés s'avère trop grand pour l'étude précise de la périphérie de la lentille, en particuliers pour la zone de vision de près du Varilux 2. Une comparaison exacte ne pourra s'effectuer que dans des conditions de mesures identiques pour les différents types de lentilles. Cette nouvelle étude a d'ailleurs été entreprise grâce à une subvention de l'Association des Optométristes du Québec. Cette étude permettra de resserrer les critères de mesure, en terme d'écart des méridiens et de valeur de l'astigmatisme.

Toutefois nos résultats concordent bien avec ceux rapportés par Wittenberg[11], et ils nous permettent d'émettre des hypothèses sur les propriétés optiques des différents modèles de lentilles progressives. Il semble que l'Ultravue possède une zone de puissance stabilisée assez étendue en vision de près, et exempté d'aberration en vision de loin. Par contre pour cette lentille, l'astigmatisme apparaît être concentré dans la périphérie de la vision de près et du canal de progression, ce qui lui amène une valeur élevée. Sur ce modèle de lentille, l'étendue de la zone de vision de près semble privilégiée au détriment de l'astigmatisme. Une approche différente semble avoir guidé la conception du Varilux 2. L'astigmatisme y est d'une valeur moindre, par contre il apparaît réparti sur l'ensemble de la lentille, il affecterait la périphérie de la vision de loin et réduirait l'étendue de la zone de puissance stabilisée en vision de près. Sur ce type de lentille la réduction de l'astigmatisme aurait prévalu sur l'étendue de la zone de vision de près. Le NZ, semblerait un compromis entre les deux autres modèles en terme d'astigmatisme et de la taille de la vision de près.

Ainsi la faible taille de la zone de vision de près sur le Varilux 2 expliquerait les mouvements de la tête observés par Jones et al[13], lors de la lecture de petits caractères, ces mouvements n'existent pas avec une lentille bifocale de type ST 25. Au contraire, le fort astigmatisme en bordure de la zone de vision de près sur l'Ultravue, expliquerait le rejet de ce type de lentilles au profit du Varilux 2, lors du mouvement oculaire de grandes amplitudes, tel que le rapportent Afanador et Aitsebaomo[14]. Les résultats et les hypothèses qui en découlent, concordent donc avec les mesures cliniques.

Conclusion

Cette étude, en dépit de son caractère préliminaire, permet de cerner les caractéristiques optiques de différents types de lentilles progressives actuellement sur le marché. Les résultats obtenus permettront aux cliniciens de comprendre et de prévoir les réactions d'un patient face à tel ou tel type de lentille progressive. De même la connaissance des propriétés optiques permet de saisir les raisons pour lesquelles, certains fabricants recommandent une sous-correction convexe en vision de loin, ou toute modification de l'addition. Il est intéressant d'établir un parallèle entre les résultats de l'étude et ceux de l'étude clinique faite par Borish et ses collaborateurs[15]. Il est en effet possible de poser comme hypothèse à vérifier, que le processus d'adaptation à une lentille progressive soit favorisé par des caractéristiques optiques amenant une diminution de l'astigmatisme périphérique plutôt que le maintien d'une large zone de puissance stabilisée en vision de près.

Remerciements

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Summary

Various types of progressive addition lenses have been presented to optometrists during the last twenty years[1-9]. Unfortunately, their optical characteristics are not precisely known. Preliminary research was conducted to study the power variation in the periphery of various progressive addition lenses.

A prototype of a scanning focimeter was used for the measurements (photo 1 and 2). This instrument, described by Simonet, Papineau and Gordon,[10] was produced with a Nikon Projection Vertoxometer. A supplementary device allows the lens under test to be rotated around the center of the vertex sphere. An adjustment permits compensation for the variation of sag at the rear surface of the lens, in order to maintain the vertex sphere radius equal to 25 mm. The peripheral power of the lens, measured with respect to the vertex sphere, is used when the eye rotates in a secondary position of gaze.

The rotation of the lens varies from 0 to 45° in 5° steps. Inside a ring holder, the lens and a collar rotate together. The ring holder is graduated in 5 degree steps over 360 degrees. It is possible to measure meridians of the lens every 5 degrees, but for this preliminary study, the measured meridians were spaced by 15 degrees. The instrument's diaphragm was 5 mm.

The following progressive addition lenses were studied: Ultravue of AOCO, Varilux 2 of Essilor, and NZ of the French company BBGR, available in Canada with the manufacturing laboratory Pro-Optic. Ten lenses of each type were measured. Five of them have convex power of +0,50, the other lenses are concave with -0,50 diopter.

For each power, the addition varied from +1,00 to +3,00, in half diopter steps. The lenses were cut to have a diameter of fifty-five millimetres. With the Varilux only, the geometrical center of the cut lenses coincided with the target of the far vision zone. For the Ultravue, the geometrical center is 5 mm under this target, and for the NZ, it is found to be 2 mm under. The different positions of the far vision zone were initially selected to optimize the data collection.

The results can easily be analysed with a graphic representation. This representation is the projection in a plane of the measured meridians. The geometrical center of the 55 mm cut lens coincides with the center of the diagram. An angular value of 5 degrees separates each measurement in each of the meridians. The powers are reported following a representation used by Wittenberg[11]. The equivlent sphere is represented by a circle, with a line for a convex power, and with a broken line for concave one. Its diameter is proportional to the dioptric power. The astigmatism is represented by a line, whose length is proportional to the amount of cylinder and whose orientation indicates the position of the negative cylindrical axis. Any astigmatism inferior or equal to half diopter was not indicated.

Because the geometrical center of the cut lens does not coincide with the target of far vision zone for all the types of lenses, it is only possible to illustrate specific properties of each type at this stage of the study.

The study on the Varilux 2 (photo 3), shows that the stabilised power zone is reduced with the addition. The astigmatism in the periphery of the near vision and intermediate zone increases with the addition. In this type of lens, the periphery of the far vision has a convex over-correction and astigmatism. These variations of power increase with the addition. With the same addition, greater than +1,50, the stabilised power zone seems more significant for a concave lens than for a convex one. But a 15° gap between meridians is probably too large to permit a precise investigation of the variations in power around the near vision.

Studies of the Ultravue lens (photo 4) have also shown, but to a lesser extent, that the stabilised power zone yields a reduced area for an increase in the addition. The effect of concave or convex doesn't seem to influence the characteristics of this lens. We find a high level of astigmatism in the edge of the intermediate and near vision zone. This astigmatism increases sharply with the addition which, with the reduction of the sphere, results in a convex under-correction bordering on the near vision zone. The astigmatism and variations in

power do not seem to affect the far vision zone for this type of lens.

For the NZ lens, the area of the stabilised power zone, and the amount of astigmatism bordering the near zone, seem to show an intermediate value with respect to the two other types of lenses. The astigmatism also seems to affect slightly the periphery of the far vision zone.

Although the different ways the lenses were cut do not allow a precise comparison between the different types of varifocal lenses, it does not seem possible to state an hypothesis concerning the optical properties of these lenses. The Ultravue has a large stabilised power zone in near vision, and a far vision free from power variation. The astigmatism, however, is high and concentred in the periphery of near vision and intermediate zone. The Varilux 2 shows a less important astigmatism, however, it is spread over a great part of the lens affecting the far vision and reducing the area of stabilised power zone of near vision. These hypotheses agree with the clinical observations[12-14]. A future study, sponsored by the Quebec Association of Optometrists, employing the same measuring conditions for all the lenses concerned, will permit a better comparison of the optical properties of these different lenses. It would be interesting to draw a parallel between these results, and those of clinical studies on tolerance[15]. Consequently, it might be possible to identify precisely which optical property of these lenses permits the easier adaptation.

Acknowledgement

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VISION PEDIATRIQUE

L'Enfant Handicapé au Plan Visuel: Une Approche Optométrique Globale

Part II: J. Décarie*, L. Fortin*, J-P. Lagacé*

Owing to insufficient space, the full text of the article by Décarie, Fortin and Lagacé, entitled *L'enfant handicapé au plan visuel: une approche optométrique globale,* **could not be published, as planned, in the December issue of the CJO (Vol. 45, No. 4). Following is the conclusion of the paper. The editors apologize to CJO readers who might have been confused by the article's abrupt termination in our December issue.**

L'évaluation des Habilétés Visuelles Dynamiques

But: — cerner les performances d'acuité visuelle à l'état dynamique à toute distance (au loin, distance intermédiaire, de près)
— cerner les variations dans les champs de vision dynamiques en fonction de cibles différentes, de conditions d'éclairage différentes, de conditions d'éclairage différentes
— cerner les performances dans les autres aires

Description:
— les acuités visuelles dynamiques
— les champs de vision dynamiques périphériques et centraux
— l'étude extensive de la sensibilité chromatique
— l'adaptométrie

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Faute d'espace dans notre numéro de décembre (vol. 45, no. 4), le texte complet du travail de Décarie, Fortin et Lagacé, intitulé *L'enfant handicapé au plan visuel: une approche optométrique globale,* **n'a pû paraître tel que prévu. La direction s'excuse auprès de ses lecteurs pour toute confusion occasionnée par l'interruption brusque de ce texte.**

L'évaluation Spécifique en Basse Vision

But: — déterminer sommairement les possibilités d'amélioration de la fonction visuelle de loin et de près à l'aide d'aides visuelles standardisées
— déterminer le grandissement nécessaire pour une performance visuelle adéquate en vision de loin et de près

Les évaluations Optométriques Spécifiques

a— l'évaluation spécifique en lentilles de contact
L'enfant handicapé au plan visuel a le plus souvent des myopies, hypermétropies, avec ou sans astigmatisme, numériquement très importantes. Le rendement visuel se trouve grandement facilité lorsque les lentilles de contact peuvent être tolérées par l'enfant (elles n'ont pas un but esthétique seulement).
Les améliorations de l'acuité visuelle et du champ de vision peuvent être surprenantes.

De plus, il est des conditions où les lentilles sont d'une aide particulièrement importante: nous pensons alors aux lentilles à pupille artificielle pour les cas d'albinisme et d'aniridie surtout. De plus ces lentilles offrent une amélioration de l'acuité visuelle et de plus sont une protection contre l'entrée des rayons ultra-violets.

(Thoms et al., 1983)

b— l'évaluation du développement visuo-perceptivo-moteur.
L'évaluation des habiletés cognitives, perceptivo-motrices et le degré d'interaction entre les diverses modalités sensorielles (visuel, auditif, tactile, cinesthésique) représentent des évaluations importantes pour tracer le développement des enfants handicapés de 0 à 15 ans.

Pour l'optométriste, cette évaluation consiste à cerner les aspects visuo-moteurs (où la vision dirige les mouvements) ainsi que les habiletés visuo-perceptuelles (où la vision dirige la perception globale et sa projection dans l'espace) et à voir s'il n'y a pas place à l'amélioration de ces aspects.

A L'aide de tests calibrés et standardisés et modifiés selon les limites inhérentes à l'handicap des enfants, on porte une attention spéciale aux items suivants (Lagacé, 1980):

— la coordination visuo-manuelle
— l'intégration visuo-auditive
— la coordination bilatérale, la posture et l'équilibre
— la latéralité et la directionnalité
— le schéma corporel
— la visualisation
— la mémoire visuelle

Ainsi décelées, ces déficiences pourront être améliorées ou développées lors des programmes de stimulation ou de rééducation visuelle.

Prescription des Aides et des Traitements

— la prescription ophtalmique de base pour les déplacements s'il y a lieu
— la prescription d'une aide télescopique et/ou microscopique
— les autres traitements

Les modes de Traitements Optométriques

L'approche Therapeutique Optique

— les corrections ophtalmiques adéquates
  — il est à remarquer que ces corrections ophtalmiques ne sont pas des bilentilles et ne sont donc pas des aides à la lecture. Ces corrections de l'amétropie de base sont prévues pour les activités de la vie courante. A remarquer que l'usage des bilentilles (comme aides à la lecture) est souvent périlleux pour l'enfant surtout lorsqu'elles contiennent de fortes additions.
— les lentilles de contact
— les aides visuelles optiques
  sont attribuées pendant ou après que les entraînements aux aides auront été complétés. Il n'est pas nécessaire ici de faire la nomenclature des aides visuelles. Habituellement, une (ou des) aide(s) pour la vision de loin et une (ou des) aide(s) pour la vision de prés seront attribuées

L'approche Thérapeutique Fonctionnelle
(les entraînements)

a— les entraînements aux aides visuelles
  — les entraînements aux aides visuelles sont normalement effectués par des éducateurs spécialisés en basse vision préalablement formés à cette fin.
  — les entraînements aux aides sont une méthode d'entraînement obligatoire pour tout enfant qui obtiendra une ou des aides visuelles.
  — on distingue les entraînements en vision de loin avec les systèmes télescopiques et les entraînements en vision de près avec les systèmes microscopiques. On retrouve dans la littérature (Watson et Jose, 1976; Watson et Jose, 1978; Wiener & Vopata, 1980) des descriptions détaillées des entraînements aux aides et qui montrent bien la somme de travail à y effectuer

b— la stimulation visuelle et la rééducation visuelle.
"la rééducation visuelle ("visual stimulation training") a pour but principal l'amélioration de l'efficacité visuelle"

(Wiener & Vopata, 1980)

La stimulation visuelle est une méthode d'entraînement pour l'enfant dont l'expérience visuelle est très faible ou dont les habiletés sensorielles et perceptuelles sont en partie inexistantes. Cette méthode s'adresse aux enfants handicapés au plan visuel avec des manques à gagner dans ces aspects. Elle sert à acquérir les habiletés minimales essentielles au fonctionnement visuel.

La rééducation visuelle est une méthode d'entraînement pour les enfants possédant déjà un certain bagage visuel antérieur ou des habiletés sensorielles ou perceptuelles à améliorer. Cette méthode s'adresse à l'enfant handicapé au plan visuel dont l'évaluation révèle des déficiences dans des domaines particuliers du fonctionnement visuel ou dont on veut développer des méthodes compensatoires.

La stimulation visuelle vise le déclenchement de l'activité fonctionnelle du système visuel excitable car l'excitation est l'ensemble de modifications locales qui suivent la stimulation et qui prépare la réponse du système.

La stimulation visuelle portera surtout sur les habiletés minimales essentielles: les habiletés motrices, perceptuelles et physiques.

La rééducation visuelle veut aller plus loin et viser plutôt deux autres plans: soit les habiletés acquises mais non-efficaces de l'enfant handicapé au plan visuel, soit les méthodes compensatoires pour détourner les effets fonctionnels du handicap visuel lui-même

1— améliorer et développer les habiletés acquises:
   — entraînement de la motilité oculaire (poursuites, fixations, rotations)
   — amélioration du contrôle des mouvements oculaires
   — élimination des problèmes de vergence et de focalisation
   — amélioration de la condition perceptuelle: jugement visuel des dimensions, jugement des distances, problèmes de coordination, confusion spatiale
   — compensation par une fonction visuelle améliorée des effets fonctionnels des limitations des champs de vision (stimulation périphérique).

2— développer des méthodes compensatoires:
   — cette méthode s'adresse principalement à trois types de handicaps visuels (Holcomb & Goodrich, 1976; Goodrich & Quillman, 1977; Jose & Watson, 1978; Semes, 1979; Quillman, 1980)
   — individus avec scotomes centraux: utilisation d'une région para-maculaire et entraînement de la performance en cette position.
   — individus avec nystagmus: meilleure stabilisation possible des yeux pour la lecture/écriture et l'amélioration du contrôle moteur oculaire.
   — individus avec perte de vision périphérique: réapprentissage des capacités de fixation de localisation et de poursuite et stimulation des aires périphériques des champs de vision.

Conclusion

Nous avons élaboré les activités d'évaluation et de traitement optométriques que l'optométriste est en mesure d'offrir à l'enfant handicapé au plan visuel. La science de l'optométrie constitue un tout, il existe donc des prémisses à respecter quant à la teneur des activités optométriques vis-à-vis la population des gens handicapés au plan visuel et en particulier l'enfant handicapé de 0 à 15 ans.

Les services d'évaluation, tout en étant de qualité, doivent déboucher directement sur des activités de réadaptation structurées et fonctionnelles. Les activités de réadaptation doivent être orientées vers l'enfant global, considéré comme un tout, et sur ses besoins et non sur le handicap lui-même.

Enfin, les aides visuelles optiques doivent être considérées comme des outils de réadaptation et ne doivent pas constituer une finalité en soi.

Ainsi, l'optométrie pourra-t-elle avoir un impact énorme sur les habiletés globales de l'enfant handicapé au plan visuel.

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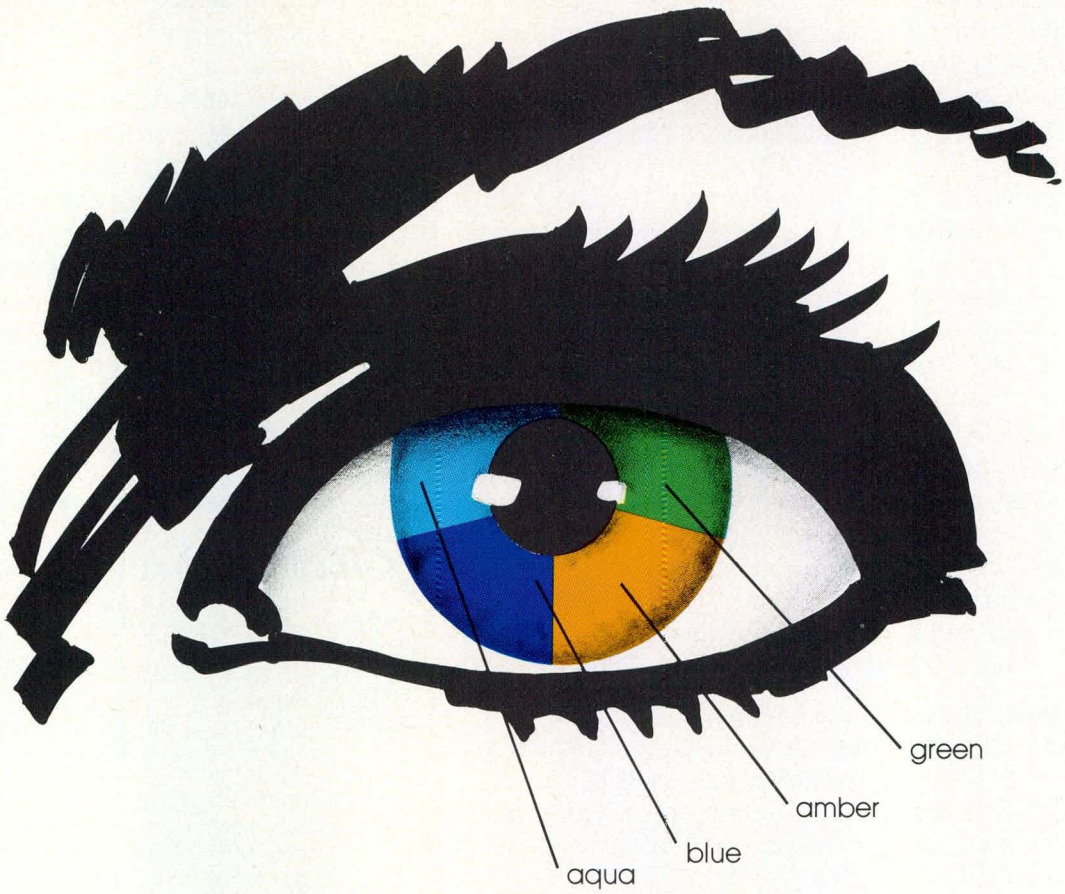

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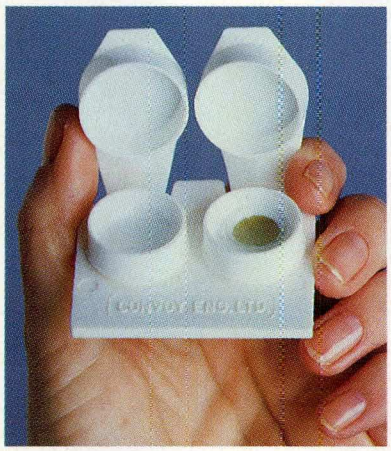

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OPINION

Learning to Look: Cognitive Aspects of Visual Attention

S. M. Rogow*
J. Hass**
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Abstract

Early visual orienting responses can be prevented in infants with central nervous system damage. Children who have extensive damage in the visual system may ignore whatever visual stimuli they receive. Other children who have a viable visual system may receive the stimuli, but have difficulty with perceiving, interpreting or acting on incoming stimuli. If experience is lacking, visual behavior may never develop. The development of visual pathways seems to depend on experience as well as physiological factors. Intervention must be planned to help multihandicapped children integrate what they see with what they know. Where there is a deficit in the sensory mechanism, repeated stimulation is necessary in order for the brain to receive and process visual stimuli. Visually impaired multihandicapped children do learn to visually attend and process visual information.

Abrégé

Des anomalies du système nerveux central peuvent entraver le développement de la motilité oculaire chez un bébé. Si les lésions sont sévères ou répandues dans le système visuel, l'enfant peut ignorer tout stimulus visuel. Certains enfants avec un système visuel intégral peuvent manifester de la difficulté à perçevoir, interpréter ou à réagir au stimulus. Le développement du système visuel dépend sur l'expérience visuel aussi bien que sur des facteurs physiologiques. Un programme planifié aux besoins de l'enfant souffrant d'handicaps multiples est essentiel pour que l'enfant puisse faire la concordance entre ce qu'il perçoit et ses connaissances. Là où il existe une déficience sensorielle un stimulus prolongé et repété est nécessaire pour que le cerveau reçoive et interprète le stimulus. Les enfants souffrant de handicaps multiples, inclus le plan visuel, peuvent apprendre à répondre au stimulus visuel et interpréter l'information.

Introduction: The Problem

Visually impaired children with neurological/physical handicaps present confusing problems to their parents, physicians and teachers. Because they do not meet the "normal" criteria when judged by the same framework used for assessment in normal development, these children are very often judged to be severely and profoundly mentally handicapped. Yet, we have seen and worked with children who are blind or partially sighted with severe neurological and physical disabilities, who began at the ages of four, five or six, to demonstrate an intelligence capable of learning abstract and symbolic material. Once language is established, many of these children prove capable of academic learning. Some children become quite capable visually and demonstrate far more visual function than could have been predicted from their visual behavior in infancy.

It is our contention that those visual behaviors that have become the parameters of measurement of visual function are, in large part, learned. Visual behaviors which express intention and purpose, such as visual attention, gaze, search, recognition of human faces and familiar objects, and eye and hand coordinated movements, represent a visual system that is well organized and integrated with other body/mind systems, such as language, emotional expressivity, etc.. Visual attention, discrimination, imagery and memory are the products of many experiences based on the physiological capacity of the eye to receive stimuli. The perception of meaning from the light patterns focussed upon the retina depends upon the capacity of the brain to process the light patterns carried by nervous energy through the visual pathways of the brain. The work of Hyvärinen and Hyvärinen (1982) suggests that early visual deprivation may lead to a decrease in the representation of vision in the associative systems of the brain. This may lead to an inability of the neural tissue to make

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normal use of visual signals (Hyvärinen and Hyvärinen, 1982). Work with cats and monkeys indicates that cells in the visual cortex do not develop normally when the animal is given abnormal visual experience during a specific period of early development (Hirsch and Spinelli, 1971, cited by Lockman, 1982). A period of abnormal visual experience early in human experience can result in lower than normal acuity levels in adulthood (Lockman, 1982).

The effects of visual impairment on the development of multihandicapped children interfere with the development of body/mind systems. Van Dijk (1982) found these effects to be greater than other variables such as hearing impairment or low birthweight. Deprivation of visual stimulation imposes many constraints on the child as he attempts to cope with the external environment. The irony is that many of these children appear to function as if they were blind, and give little indication of responding to visual stimuli they do receive. It is extremely important for the futures of these children that efforts be made to assess and develop their visual functioning, and that they not be considered blind in the absence of functional eye disease. Multiply-handicapped children with damage to the visual system are at a critical disadvantage. Not only do they experience reduced input through their other senses, but when they are kept on their backs in a bed or crib, or in one position in a room, they have extremely limited exposure to visual stimuli. Lack of practice in ocular and motor activity further inhibits any development of vision. The child becomes locked into a vicious cycle. Reduced vision produces reduced output and creates a deprived and depriving environment that is further exacerbated when there is no expectation that the child will improve. Then, there is even less opportunity created for those necessary interactions which stimulate visual responses and in turn reduces what may be available to the child in the way of visual input leading to a dramatic lack of development.

This pattern can be broken and learning to "look" and then "looking to learn" can be developed in multiply-impaired children. Visually impaired multihandicapped children are rarely totally blind. Most of these children possess visual potential but lack the experience necessary to develop behaviors that will demonstrate it. With prompt and careful attention from the optometrical and medical professions, especially optometrists and ophthalmologists, and careful intervention based on sound pedagogical principles, severe and profound retardation and visual avoidance may be prevented in most of these children. Profound retardation is frequently a secondary handicap arising from neglect and lack of early intervention.

Vision in Normal Development

In the normally developing child, vision appears to develop spontaneously. Vision becomes well organized and integrated with other sense modalities as the child interacts with his environment. Visual attention can be observed in very young infants (2 months of age) and visual search is seen as early as three months (Tronick and Adamson, 1980). The fact that these behaviors are developed so early in normal infants has led to the belief that they are physiologically scheduled. From the beginning the normal infant is oriented towards looking. His brain seeks stimulation and the visual system is oriented to produce looking behaviors. Normal infants do not need to be "taught" to see. No one shows the infant how to "look" at his or her mother's face or focus his/her eyes upon an object. By six months of age, the infant is actively using his eyes to explore his environment, his visual memory is well developed, and he has integrated his/her vision with communicating and interacting with his/her environment.

Because of the importance of vision in integrating with other sense modalities, vision plays a critical role in social, cognitive and language development. From earliest infancy, the eyes function in association with everything that is happening to and around the child. Infant gaze or careful intense regard of the mother's face is an expression of the emotional bonding process (Tronick and Adamson, 1980). The infant's gaze signals interest and attention to the adult, who responds with a range of expressive facial and vocal behaviors. The important mutual reciprocal visual regard functions as the first mode of communication for normally sighted infants. As the infant learns that when he/she fixes his or her gaze on the adult, the adult responds by doing something with the infant; infant gaze becomes a social signal which initiates interaction. The experience of visual contact with the environment becomes linked to social behavior in sighted children (Tronick and Adamson, 1980; Trevarthen, 1980; Bates, 1979; Stern, 1977). The adaptive system of the infant is characterized by the ability to coordinate the focus of attention to that of the adult (Tronick and Adamson, 1980).

The development of reach and grasp also seems to depend on visual development. According to White et al. (1964) infants possess a visual-attentional behavior that allows them to look at and follow seen objects in addition to a touch-grasp behavior. The behaviors are initially separate and evolve, through experience, to the point when the infant becomes aware that the hand he/she looks at is also able to grasp objects. This results in an integration of visual-attention and grasping behaviors, allowing the child to coordinate his physical response and control his hand movements through his visual sense.

Important changes occur in the attentional abilities of infants during the first few months of life. Interesting light patterns command more visual attention than non-patterned stimuli. Fantz (1964) observed that young infants look longer at patterned than at plain surfaces, curved rather than straight lines, colored rather than neutral stimuli and novel rather than familiar stimuli. Werner and Siqueland (1978) found that infants with high perinatal risk scores (due to medical complications and longer periods of hospitalization) tended to respond less differentially to familiar and novel stimuli.

As the child becomes increasingly practiced in the use of his eyes and these optical skills become refined and established, then increasingly complex discriminatory functions continue to develop. The child is beginning to look in order to learn. These optical/perceptual functions are strongly tied in with exploratory play and manipulation of objects.

Visual attention is an expression of organized and integrated behavior. It is a perceptual and interpretive act that is far more than simply the fixation of the eye on a stimulus. Visual attention must be developed if the child is to make use of his or her vision as a pathway of learning.

Additional evidence that looking behaviors are acquired or learned in the course of interaction with the environment comes from the research conducted by Bower (1977). Bower noted that the environment seems to provide those experiences which refine the physiological act of seeing and link it to the conscious acts of exploring, understanding, and responding to the environmental stimuli. Early visual awareness seems to create a knowledge of the structure of the world that cannot be given by the other senses (Bower, 1977).

Development of Visual Attention in Multihandicapped Children

Our experience with visually impaired multihandicapped children has taught us that even the most severely handicapped child can learn to use the vision he/she possesses.

Developing visual attention in multihandicapped children requires a high level of interprofessional cooperation and expertise. Not only must the type of visual problem be clearly identified, but the possible interaction effects of severe visual impairment with other types of disabilities need to be clearly understood. This information is essential if we are to be able to create the kind of adaptive environment these children require. Van Dijk (1982) reported that stereotypic behavior such as shaking the hand in front of the face may itself be a consequence of the child's effort to obtain visual stimulation. Van Dijk noted that young Rubella children with growing cataract density tend to exhibit fascination with their fingers and lights. Other rhythmic habit patterns, such as body rocking and finger and toe sucking, may function to give the child control over motor actions. One important interpretation of these behaviors is that they are a result of the child's inability to respond appropriately to the demands of the environment (Van Dijk, 1982).

Other visual problems such as unequal vision, which Sonksen (1982) defines as vision that is virtually absent on one side and limited on the other, can lead to unbalanced levels of integration of auditory inputs from each ear, which is then manifest as an unequal ability to locate sound. Sonksen (1982) also noted that unequal levels of integration of vestibular afferents may lead to an inequality of postural reactions.

Whenever physical handicaps interfere with activity, every effort should be made to create physical adaptations so that the child can approximate the necessary movement as closely as possible. Enhancement of visual stimuli can be achieved by bringing them closer to the child's eye, using colors that are appealing and of good contrast, lighting it, and otherwise making it enjoyable to view. Because so many factors come into play with severe impairments, it is not possible to predict or expect any one type of consistent response or progression of skills. Given the opportunity to become aware that "looking is enjoyable," many children will develop an interest in "looking" (Barraga, 1964). The development of interest in visual stimuli triggers a general awareness and awakening of the mind in other areas.

Parents and teachers have numerous opportunities to observe these children in familiar surroundings on a continuing basis and can provide important information that will assist optometrists and ophthalmologists in making an evaluation. With guidance from an optometrist or an ophthalmologist concerning relevant behaviors that should be noted, a great deal of pertinent information can be gathered.

Multihandicapped children often relate best to objects that are part of their everyday experience. Functional materials such as food, clothing, or eating utensils may prove to be valuable tools in the observation of visual behavior of multihandicapped patients.

As professionals who are often called upon to make prognostic judgments, we need to exercise great caution. It is wise not to use the term "blindness" in connection with visually impaired infants or young multihandicapped children when the major clinical signs are a lack of fixation or tracking. The social implications of the term may mean that the child is treated as if he were totally blind and no effort made to stimulate him/her visually. This is the reason we are often surprised when the child begins to behave in a visual way. Since it is easier to instruct than to undo poor habits,

we need to give these children every possible chance for maximum learning. Expectation is an important part of this process and the diagnostic terms that are used are taken very seriously by parents.

We have a long way to go in understanding the dynamics of visual development. A research partnership between our professions can help to illuminate large areas of human development that still seem so elusive.

The Importance of Precise Oculo-Visual Assessment Information

Before any educational program can be developed, information of the precise nature of the child's visual condition and visual potential must be assessed. Such information answers the questions: What visual stimuli is the child able to receive? In what position can he or she best receive it? And what aids or adaptations can be used to assist? In order to determine the answers to these questions, optometrists and physicians need to be aware of the child's total condition.

Examination by conventional means is often unsuitable because of the many constraints placed on development by the multiplicity of impairments which interact with one another. The examination of multihandicapped children requires adjustments in the length of examination and materials used. Most of the tests commonly administered assess learned behavior and the multihandicapped child's repetoire of learned behaviors may not accurately reflect his/her potential to develop skills.

Conclusion

Conventional assessment procedures frequently rely on subjective responses involving expressive language and motor abilities. What is actually being observed during the examination is a patient's repertoire of learned behaviors. Children's command of expressive language and motor abilities determine the outcome of conventional assessment procedures. Because these are learned behaviors, it is the learned behaviors that are being observed and not the child's potential for learning. For example, successful performance with the Snellen chart requries that the child can attend to environment, has adequate motor control, language, and can recognize printed symbols as well as have sufficient vision to perceive the letters or symbols. A child may perceive the presented stimuli but not have the communication skill to indicate what has been perceived. The use of pictures or photographs which require an ability to relate to objects on a representational level may hinder an examiner's efforts to elicit responses from multiply-impaired children.

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OPINION

Visual Standards for Civil Aviation

H.A. Backman*

Abstract

Standards for personnel licensing are established by the International Civil Aviation Organization. These standards and procedures are set without investigation concerning their validity and are revised occasionally. The procedures for the ophthalmic examination are often beyond the competence of the aviation medical examiner. Recommendations are made to develop new improved standards and procedures. A complete professional oculo-visual examination should be required on a regular basis for re-licensing civil pilots.

Abrégé

Les normes pour l'obtention d'un permis de vol dans l'aviation civile sont régies par l'Organisation Internationale pour l'Aviation Civile. Ces normes ont été établies sans enquête préliminaire de leur validité. Elles sont soumises à une révision à période irrégulière. Toutefois, les procédures d'un examen visuel complet dépassent la compétence du médecin examinateur. L'auteur propose l'établissement de nouvelles normes et procédures d'évaluation visuelle. Il recommande un examen visuel complet préalable au renouvellement du permis de vol des pilotes civils.

Aviation medical examiners and pilots are primarily concerned with general medical requirements, hearing, vision and colour perception in the process of licensing. Dr. Thomas Tredici, Chief of Ophthalmology at Brooks A.F.B., Texas states that "More than 80% of the information necessary to accomplish the flying task is gathered by the visual sense. A thorough eye examination and the visual standards screen out ocular pathology and visual problems felt to be incompatible with flying."[1] The purpose of this paper is to examine the origin and procedures for establishment of civil aviation visual standards and to provoke discussion of new concepts and medical devices as they may relate to these standards.

Standards for licensing civil aviation personnel are usually adopted from the Manual of Civil Aviation Medicine published by the International Civil Aviation Organization (I.C.A.O.)[2]. Air Marshal Sir G. Dhenin in *Aviation Medicine* states that "in formulating these standards, I.C.A.O. must compromise in order that developing nations can meet these minimum standards and agree to their adoption."[3]

Origins for Establishment of Civil Aviation Medical Standards

I.C.A.O. Standards and recommended practices for Personnel licensing were first adopted by the I.C.A.O. Council on April 14, 1948 and designated as Annex 1 to the convention.

The first Hearing and Vision Committee met on April 25, 1955. It included twenty consultants to civil and/or military aviation administrations from member nations, as well as representatives from five international agencies concerned with air transport and health.

The Ophthalmology section of the Manual was prepared by Drs. J. Boissin, France and V. Dreyer, Denmark. I.C.A.O. is presently revising the original Manual of Civil Aviation Medicine, which was first prepared in 1974. Revised at approximately five year intervals, it is not a legally binding document.

The Manual serves as a guide and "is not intended to have any regulatory implication, its main purpose is to aid in the implementation of Personnel licensing (Annex 1) provisions. The aim is to achieve a measure of international uniformity of procedures and comparable results in the assessment of both normal and borderline licensing cases."[4] How valid are these "principles of ophthalmic examination techniques and assessment of visual functions in relation to aviation duties."?[4]

Procedures for Eye Examination

The vision examination consists of a case history, assessment of visual acuity, refraction, corrective lenses including contact lenses, visual fields, ocular muscle balance, intra-ocular tension, ocular pathology assessment and a test for colour vision; in other words, a complete oculo-visual assessment. I.C.A.O. recommends a six-month report of medical fitness for airline pilots, but no frequency for a *complete* eye examination is suggested in the Manual.

The case history deals primarily with asthenopia. Little attention is paid to vision symptoms associated with flying, i.e. the ability to read navigation charts at night, the ability to see landing lights or to judge distances. A clinical examination is recom-

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mended following the case history, commencing with an external ocular examination.

The Manual states that "Applicants with such findings (pericorneal congestion, severe pain, photophobia, blepharospasm and lacrimation or irregular pupils) should be referred to an ophthalmologist, as fully reliable diagnosis presupposes training in the use of the slit-lamp and ophthalmoscope". Hopefully, the aviation medical examiner has been trained to use a penlight to test pupillary responses and an ophthalmoscope to examine the eye.

Visual acuity is measured using the Landolt ring or Snellen acuity chart at six meters and the "Times Roman" type print is used at 30-50 and 100 centimetres respectively. The mimimum visual acuity to perform cockpit duties safely is unknown but has been established empirically.

A great deal of material is presented in this document on a discussion of presbyopia and its appropriate correction. The Manual makes some recommendations regarding the amplitude of accommodation required but, unfortunately, this is variable and must be taken into account in clinical measurements and in prescribing corrective lenses.[5]

Under the subject of binocular vision, heterophoria, but not fusional ranges, is discussed. Little attention is paid to fusion, stereopsis, saccadic and pursuit eye movements. Earlsberg and Rubin[6] state that with a stereothreshold of two seconds the limit of stereopsis is four miles and "accordingly, it seems appropriate to assess the aviator's stereothreshold". This leads to the problem of the monocular pilot. Morris Fraser, at the University of Waterloo, conducted a study for the Canadian Minister of Transport and found that monocular pilots could fly safely. In light of this study, stereoacuity and monocular vision must be reconciled.

Colour vision testing is recommended utilizing the Ishihara test plates or American Optical H.R.R. test. Unfortunately, the former test does not reveal Yellow-Blue colour deficiencies and the latter is no longer available. Monocular testing is not recommended in the Manual nor is the effect of medication and ocular and systemic diseases on colour vision considered.

Recommendations

Standards

Few clinical studies have been performed and standards are empirical. Many aspiring pilots rejected by licensing authorities may, in fact, be very skilled and competent to fly safely and pilots are often retired prematurely, which is very costly to their employers.

The present standards could be improved by an interdisciplinary review committee. Steneck[7] reported "the fact that relatively few persons, with similar points of view, made most of the early decisions about the development of research and policy on the biological effects of microwave radiation obviously minimized and may even have eliminated input from other perspectives. When science becomes involved too deeply in the procedures of standard setting, it runs the risk of being diverted from its primary objective of understanding nature. To set a standard, one simply needs to know at what level, for whatever reasons, harmful effects appear. So not only must different points of view be integrated into planning . . . They must be integrated in ways that are appropriate." Research projects should be sponsored by various agencies to develop safe norms. An interdisciplinary standing committee, sponsored by various aviation and health care agencies, should constantly review standards for the cockpit environment and for a pilot's medical fitness to perform his duties well and safely.

Examination

The applicant must demonstrate normal visual fields and no active pathology at re-licensing. Colour perception is a requirement to *obtain* a license, but is not usually verified thereafter. Some countries require an assessment of ocular motility, the prescription of corrective ophthalmic lenses, and the type of correction for presbyopia. This is beyond the competence of a general medical aviation examiner to evaluate. A complete, professional oculo-visual examination should be required on a regular annual basis for re-licensing civil pilots. More frequent examination should be performed, if necessary, when progressive vision anomalies are present.

New examination techniques such as automated refraction and visual field screeners should be evaluated. Should these devices be operated by a technician, or aviation medical examiner, and should it replace a complete professional examination? The cover test is an inexpensive and objective test for evaluation of heterophorias. An excellent subjective test would be fixation disparity measurements at distance and near vision. Stereopsis fusion and ocular motility should be evaluated.

Treatment

Various types of spectacle and contact lenses may be employed to correct vision. Studies on lenses for pilots, such as that performed by Smith and Backman,[8] could provide useful information in evaluating the form of spectacle therapy. The use of contact lenses has been permitted in many countries but problems such as air bubbles due to pressurization changes, deposits on lenses which reduce visibility and produce light-scattering glare, as well as orthokeratology, must be evaluated for pilots.

New drug delivery systems, and their side-effects, need to be considered. New surgical procedures, such as surgery for refractive errors, laser therapy

and ocular implants require study. Unfortunately, little attention is paid to ocular pathology in this medical manual and many new and controversial forms of treatment are in effect which may actually interfere with the performance of flying duties.

Conclusion

The principles for the establishment of civil aviation standards and procedures for licensing personnel in the I.C.A.O. Manual of Civil Aviation Medicine have been reviewed. Vision is a most complex and important sense in Aviation which cannot be simply screened in a general medical physical examination. The examination for licensing personnel, for example in Canada, requires specific knowledge and testing of vision, e.g. the degree of refractive error, which is beyond the capability of the aviation medical examiner.

W.M. McLeish, of the Canadian Ministry of Transport, in a forward to the Personnel Licensing Handbook notes that "many countries have, over the years, accumulated valuable funds of experience and information concerning this relationship (physical fitness to flight safety) from both operational and medical points of view."[9] This has resulted in the establishment of empirical standards and procedures which need to be constantly revised.

Studies must be performed to provide the necessary scientific data to establish valid standards for licensing personnel. Examination and treatment procedures must regularly be evaluated by experts from various interdisciplinary agencies to ensure that the pilot is able to maintain his medical and visual fitness to perform his duties at an optimum level.

Acknowledgement

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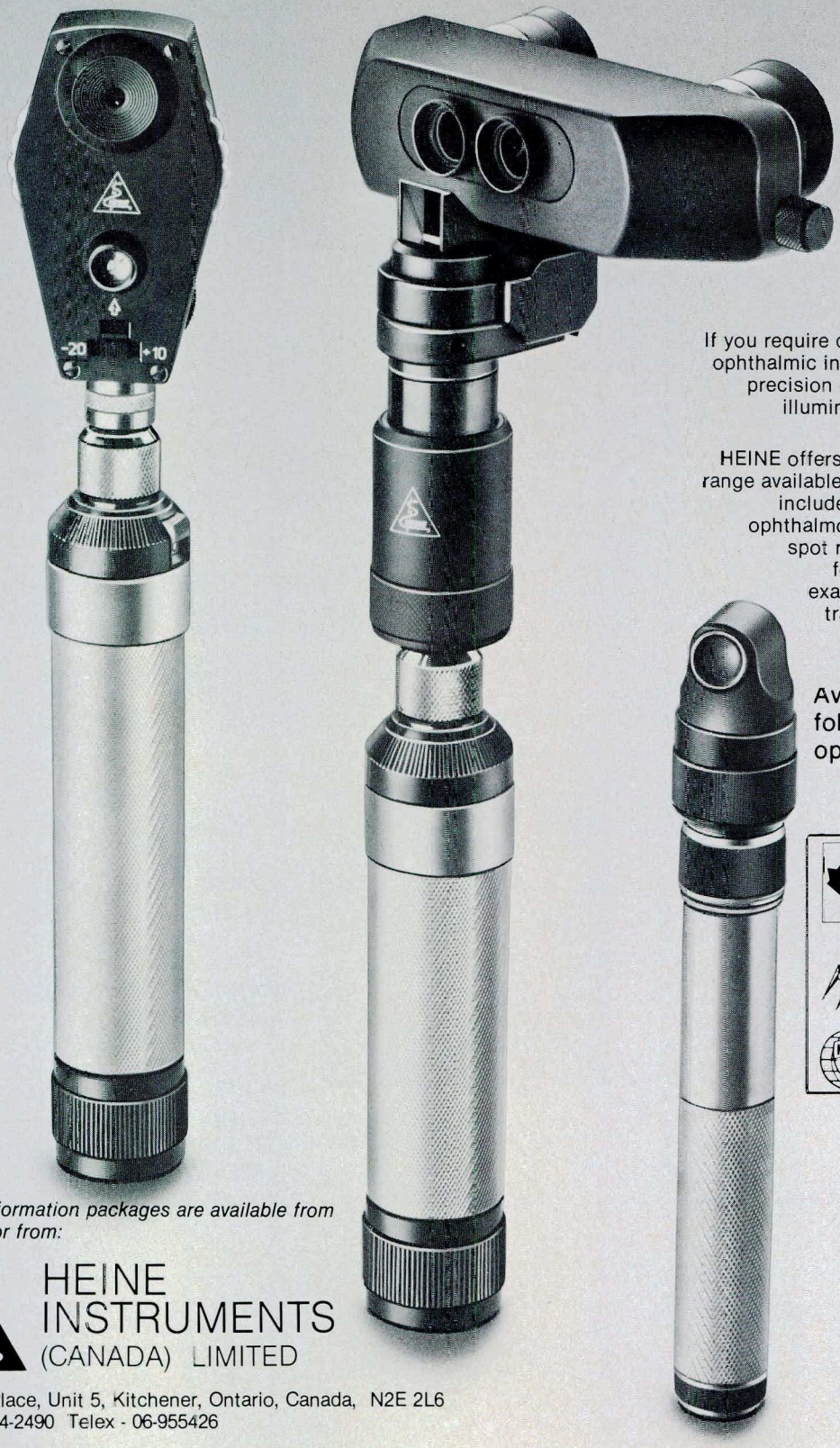

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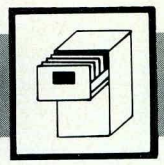

CASE REPORT

Application of Percival's Criterion in Correcting Insignificant Hyperopia in a Pre-Presbyope

K.M. Robertson*

Abstract

This is a case report of simple hyperopia with adequate amplitude of accommodation to compensate for the increased accommodative stress. Success of the small prescription was attributed to the improved binocular function based upon Percival's criterion for vision comfort.

Abrégé

Ce rapport de cas traite d'une condition d'hypermétropie simple avec une accommodation adéquate pour subvenir au demandes du point de lecture. Le succès de la faible correction s'expliquerait par une amélioration de la fonction binoculaire basée sur une application du Critère de Percival.

Patient: DR - male
age: 12 years 5 months
vocation: Grade VII
avocation: sports (hockey, skiing, baseball)

Case history: Last ocular assessment was 2 years previously and received glasses for school work. Has recently lost glasses. Finds that the blackboard blurs frequently without glasses but never blurs when reading. However with extended reading the eyes feel "tight and sore". Has been getting bitemporal headaches at school. The headaches also come when doing homework.

Unaided visual acuity:

at 6M	OD 20/15	at .40 cm	OD .37
	OS 20/15		OS .37
	OU 20/20		OU .37

Covertest:
at 6M (habitual) 2^{Δ} esophoria
at .4M (habitual) 2^{Δ} exophoria

Near point of convergence: to the nose

Sensory fusion: There was no evidence of suppression on vectographic card and slide. Stereoacuity was measured as 60" at 6M and 40" at 40 cms.

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External examination: All pupil reflexes (direct, consensual and accommodative) were responsive, equal and rapid. The palpebral conjunctiva was slightly ejected but there was no evidence of ocular discharge and/or conjunctivitis.

Ophthalmoscopy: Fundus examination revealed a normal youthful fundus with type I discs. The foveal reflex was very distinct with no evidence of pigmentary disturbance.

Static retinoscopy:
OD +1.00 20/20
OS +1.00 20/20

Subjective refraction: Balanced by red-green and dissociation
OD +0.75 20/15 OU 20/15
OS +0.75 20/15

Amplitude of accommodation: Measured by pushup technique
OD > 10.00 D.S.
OS > 10.00 D.S.

Motor fusion: by von Graefe at 6M (stimulus to accommodation = 0)
orthophoria; negative fusional vergence: x/6/4
positive fusional vergence: x/12/4

At .4M (stimulus to accommodation = 2.5 OD)

4^{Δ} exophoria; negative fusional vergence: 14/18/10
positive fusional vergence: 20/24/12

Accommodative facility: (time in seconds per cycle to clear vision in shifting from +2.00 to -2.00 monocularly, at 40 centimeters using 0.37M)

OD 4 secs/cycle
OS 4 secs/cycle

Colour vision: Testing on the F2 plate indicated normal trichromacy

Disposition:
a) Environmental - the patient was counselled on good reading habits; such as maintaining good reading distance and illumination. Without any correction the reading position should be held further out to reduce accommodative stress.

b) Ocular health - the patient was counselled that there was no apparent ocular pathology or systemic condition causing ocular signs.
c) Ametropia and binocular vision - with the ametropia corrected the patient meets all criteria (both Sheard's and Percival's) while viewing at 6 meters and .40 meters. The visual acuity measured binocularly at 6 meters equals the monocular visual acuity.
The AC/A (calculated) is determined as 3.8^{Δ} convergence per 1 diopter of accommodation. Percival's criterion is no longer met at 6M when the stimulus to accommodation is increased by .75 D. (It is to be noted that the unaided visual acuity is less binocularly).
The von Graefe measures would be altered by the following:
3.8^{Δ} x .75 D = 2.7^{Δ} or +2.5 and would be habitually 2.5^{Δ} esophoria at 6M

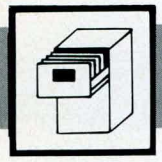
NFV: x/3.5/1.5
PFV: x/15.5/7.5

1.5 exophoria at .4M

NFV: 12.5/16.5/8.5
PFV: 21.5/25.5/13.5

Therefore by correcting the small amount of ametropia the binocular coordination at six meters was treated and at 40 centimeters the stimulus to accommodation was reduced to 2.5 diopters.

Effectiveness of recommended therapy: The patient was contacted 3 weeks after receiving the spectacles. His report indicated no blurriness when looking at the blackboard even after long periods of reading. There were no indications of eye fatigue when reading for extended periods of time. The patient was advised to have yearly ocular evaluations to ascertain that environmental visual demands, ocular health, ametropia and binocular vision has not varied.



CASE REPORT

Improvement of Visual Function of a Cerebral Palsied Child with Periodic Exotropia of the Divergence Excess Type

K.M. Robertson*

Abstract

Frequently, children who have a systemic disease which coincides with a very high incidence of visual anomalies are considered untreatable. This article describes the visual therapy given to a 10 year old child with cerebral palsy and the apparent success of the treatment.

Abrégé

Fréquemment, on considère que certains enfants souffrant d'une maladie générale et de plusieurs anomalies visuelles, sont intraitables. Ce travail décrit la réhabillitation visuelle d'un enfant de dix ans souffrant d'une paralysie cérébrale.

Patient, PT-male, age 10 was examined at the School of Optometry Clinic, University of Waterloo and consequently referred to the Binocular Vision Clinic. At age 4 the patient was diagnosed as having a "mild case" of cerebral palsy. He had attended classes for fine motor control and was in the regular classes at school. Evaluation by the school indicated that he could do all verbal and auditory skills above average but all reading and writing skills were below average. Case history revealed that previously no visual therapy was recommended.
Diagnosis was as follows:

Unaided V.A.

6M	O.D. 20/30	.4M	O.D. .37M
	O.S. 20/25		O.S. .37M
	O.U. 20/25		O.U. .37M

Refractive error:

O.D. -0.75-0.50x045 20/20
O.S. +0.50-0.75x165 20/20

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Sensory fusion:
Fusion and no suppresion at 6M and 40 cms was noted. Stereoacuity at 6M was now 120 secs. as measured on the AO Vectographic Slide.

Binocular Coordination:
At 6M: 22$^{\Delta}$ alternating constant comitant exotropia with left eye preferred.
At 40 cms: 18$^{\Delta}$ comitant exophoria. (in dim illumination bifoveal fixation was maintained out to 3.5 meters. i.e. while viewing further than 3.5 meters the deviation became manifest.)

Retinal correspondence:
Since the condition was occasional there was a possibility of covariance. All tests indicated normal retinal correspondence even when the deviation was manifest.

Sensory fusion:
At 40 centimeters the stereoacuity of 30" was indicated. In dim illumination there was no suppression at 6 meters (diplopia was experienced).

Recommended visual therapy:
1) Correction of the refractive error to equalize the clarity of the retinal stimulus patterns and the stimuli to accommodation.

2) Typical visual training for an intermittent exotropia of the divergence excess type[1].

The visual training for the exotropia consisted of:
1) Anti-suppression training
2) Accommodative facility training
3) Voluntary vergence-vergence accommodation[2] training
4) Positive fusional vergence
5) Sensory integration.

Since fusion was achieved only at distances closer than 3.5 meters visual training was commenced at three meters and then gradually extended to infinity as the binocularity improved. The rationale of the above procedure is dependant upon the relationship between accommodation and convergence during refixation from a dissociated position[2].

After 4 weeks of visual training (6 in-office visits and home training) a binocular vision evaluation was performed. The diagnosis now consisted of:

Refractive error and aided visual acuity:
O.D. -0.75-0.50x045 20/20
O.S. +0.50-0.75x165 20/20

Binocular coordination:
At 6M: 25$^{\Delta}$ exophoria with sufficient positive and negative fusional vergence.
At 40 cms: 7$^{\Delta}$ exophoria with sufficient positive and negative fusional vergence

Ocular Health:
All pupillary reflexes (direct, consensual and accommodative) were found to be present, equal and responsive. Ophthalmoscopy indicated healthy ocular media and fundi. Further evaluation proved to be unremarkable.

The visual training procedures consisted of:

Anti-suppression training
—following a rotating penlight with a red filter and a vertical prism in front of the nonpreferred eye[1]
Accommodative facility training
—accommodative rock and jump directions[1]
Voluntary vergence-vergence accommodation training
—refixation training[1]
—beads-on-string[1]
Positive fusional vergence training
—anaglyphic targets[1]
—vectograms[1]
—loose prisms[1]
—pencil push-ups[1]
—amblyoscopic procedures[1]
—vodnoy aperture rule[1]
Sensory integration training
—telebinocular

Patient, PT-male, age 10 was given a maintenance program and was re-evaluated in 6 months. It was found that his acquired binocular status had not regressed and sensory/motor fusion was present at 6 meters. His mother and school teacher noted an improvement in his learning performance over this period. However the possibility of a coincidence was not investigated.

Discussion:
The diagnosis of cerebral palsy suggests chronic motor dysfunction because of motor control area involvement[3]. Also the literature indicates that the incidence of visual anomalies in the cerebral palsied population is higher than in the normal[4]. Previous results which have been presented[5] indicate that through visual training a change in visual function of the cerebral palsied can be effected. It is apparent that the binocularity of this cerebral palsied patient has also improved with visual training. Therefore there is a need to include the cerebral palsied population in all aspects of visual care and therapy.

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What's All The Fizz About?

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In September of this year, Alcon introduced a new weekly contact lens cleaner, *Alcon Enzymatic Cleaner*. Recently a major competitor began claiming that their product would clean lenses in 15 minutes instead of the 2 hours previously quoted. However, they also recommend longer or repetitive cleaning cycles for lenses worn for more than 1 week between enzyme treatments.

What's all the fizz about?

Alcon research scientists tell us that a 15-minute cleaning cycle with *Alcon Enzymatic Cleaner* will also work on most lenses that do not have built-up protein deposits. However, for an extra margin of cleanliness and to ensure complete removal of mucin and lipid deposits, in addition to protein, a 2-hour soaking should be recommended.

Furthermore, *Alcon Enzymatic Cleaner* may be used on all types of lenses. Cleaners containing papain must be used with caution on high water content lenses. Soaking these lenses for long periods in a papain solution increases the potential for ocular irritation.

While studies have shown that some patients are sensitive to papain, *Alcon Enzymatic Cleaner* contains *pancreatin*—a non-sensitizing enzyme. The use of *Alcon Enzymatic Cleaner* virtually eliminates the potential for sensitivity and provides complete cleaning.

Alcon Enzymatic Cleaner is an effervescent, odourless tablet recommended for complete cleaning of all types of lenses. It is a non-sensitizing, papain-free cleaner which removes protein, as well as lipid and mucin deposits.

ALCON CANADA INC.

K. Gordon

Keith D. Gordon, Ph.D.
Director of Marketing

PAAB CCPP MEMBER PMAC

How to Survive a Seminar

N. Paige*
D. Golledge**
Z. Rona†

Are you dreading your next seminar? No need to. When you finish reading this, you will have become not only a seminar survivor, but a source of wonder and knowledge to your fellow "seminarians." (If the word doesn't exist, it should!)

It is impossible to be a business or professional person these days without attending seminars from time to time. From the point of view of physical/mental well-being, this may not be a problem when the seminar is short, say one day, but it is far more serious when the seminar is lengthier.

The stress occasioned by the need to sit still for hours at a time, day after day, is a very unfortunate situation for any human being. The enforced immobility may produce such symptoms as sleepiness, leg cramps, indigestion, headaches and anxiety, which leads to the inability to comprehend the subject being dealt with. This defeats the very purpose of attending the seminar in the first place.

Unless you are lecturing, you must sit at a seminar. That's a shame. Because structurally, your pelvis is probably in its most unstable position when you sit. The lower portion of the pelvic bones move closer together and allow the upper joints to move apart. Thus your lower spine loses its usual support. This is even further aggravated when you cross your legs. Aside from instability, the spine now has the added stress of weight imbalance.

Muscle spasm is another problem associated with prolonged sitting. The most common area of pain is the gluteals, (what you sit on), but the leg-crosser adds the discomfort of pain in the lower of the two thighs, which is the result of pressure exerted on the area interfering with local circulation.

Fortunately, a number of simple remedies are available, which help counter the vicious spiral of "Sedentary Seminar Suffering Syndrome." Here is what you can do to avoid the nasty "S.S.S.S."

*O.D.
**D.C., D.T.
†M.D.
Toronto, Ontario

Wake Up With Deep Breathing

An old karate gambit, you can raise your level of alertness by taking six or seven deep breaths. Breathe in slowly, as deeply as you can. Follow by breathing out, *exhausting as much air from your lungs as possible*. Out with the old, in with the new. An instant pick-me-up!

Lower Your Blood Pressure

You can avoid or relieve leg cramps and improve your alertness with a very short, easy isometric exercise. Simply tighten as many of your body muscles as you can — legs, buttocks, torso, arms and neck, for six seconds. Relax for a few seconds and repeat twice. This exercise carried out only three times daily will improve your circulation and has been shown to substantially lower blood pressure. Best of all, the exercise can be carried out as easily during the lecture as your deep breathing.

Avoid Back and Leg Pains

When sitting, your staying power is only as good as your posture. Put both of your feet on the floor uncrossed. The ideal position is to place your back right against the back of a firm, straight chair with your knees slightly higher than your hips. A briefcase comes in handy here as a make-shift footstool. The ideal angle of the back is 110° for the normally mobile back and 100° for anyone with restricted mobility.

Perk Up Your Nutrition

Your brain's primary source of fuel is blood glucose. Hypoglycemia (low blood sugar) may make you feel dull, tired, anxious, irritable and depressed. Who needs that? Try to cut down on the following foods at least 72 hours before seminar time: coffee, tea, alcohol, sugar, white flour products and drugs containing caffeine. If you like, have an extra drink *after* the seminar to celebrate how well and alert you felt *during* the seminar. Avoid

concentrated sources of sugar (soft drinks, candy bars, gum, muffins, etc.). These all produce rapid rises in blood glucose, but within a short time (from minutes to a few hours) cause a nasty rebound effect due to low blood glucose through the action of insulin.

On the positive side, before and during the seminar, you should eat plenty of whole grains, fruits, vegetables, seeds and nuts. These unrefined foods supply a steady flow of time-released glucose to the brain. Carry seeds and nuts in your pockets and snack on them from time to time. Aside from being an excellent source of trace minerals and essential fatty acids, these are foods that will provide a stable blood glucose level.

You can also help avoid the "Seminar Blues", by supplementing with some vitamin "B" complex (50-100 mgs. daily), and vitamin "C" (500-1500 mgs. daily). These aid in the more efficient metabolism of carbohydrates.

If these simple measures fail to help your concentration, stamina, and enthusiasm for the seminar, one of two things may be responsible:

(1) The seminar is a dud. Either you already know the material presented, or the lecturer is "borrring!".
(2) You are out of shape and in urgent need of a thorough biochemical-nutritional evaluation and assessment for an exercise program. In other words, you may need a visit to a nutrition-oriented doctor and perhaps some aerobic exercise. Also better check your eyes if it's been over a year since your last check-up. "Eyestrain" can put you to sleep too. (How long has it been since you had *your own eyes* checked, Doctor?

A knowledge of the factors that enable you to get the most out of your seminars and come out feeling on top will really pay high dividends at your next seminar. Enjoy.

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Kiveloff, B., M.D. and Huber, O., Ph.D. Brief maximal isometric exercise in hypertension. *Journal of the American Geriatrics Society*. Volume 19, No. 12.

Kiveloff, B., M.D. Brief extensive isometric exercise in the treatment of intermittent claudication. *Journal of the American Geriatrics Society*. Vol. 22, No. 3.

Hoytcon, H. Sacroiliac subluxation as a cause of backache. *Surgical Gynecology and Obstetrics* 1927-45: pg. 637-649.

Knuttson, B., Lindh, K., Tehag, H. Sitting: an electromyographic and mechanical study. *Acta Orthopedica Scandinav*, 1966, 37: pg. 415-423.

Caillet, R., M.D., F.A. Davis Co. 1977. Soft tissue pain and disability.

Kunin, P.A., M.D. Mega-nutrition, the new prescription for maximum health, energy and longevity. McGraw-Hill Book Co., New York, 1980.

Bland, J., Ph.D. Your health under seige: using nutrition to fight back, the Stephen Green Press, Brattleboro, Vermont, 1981.

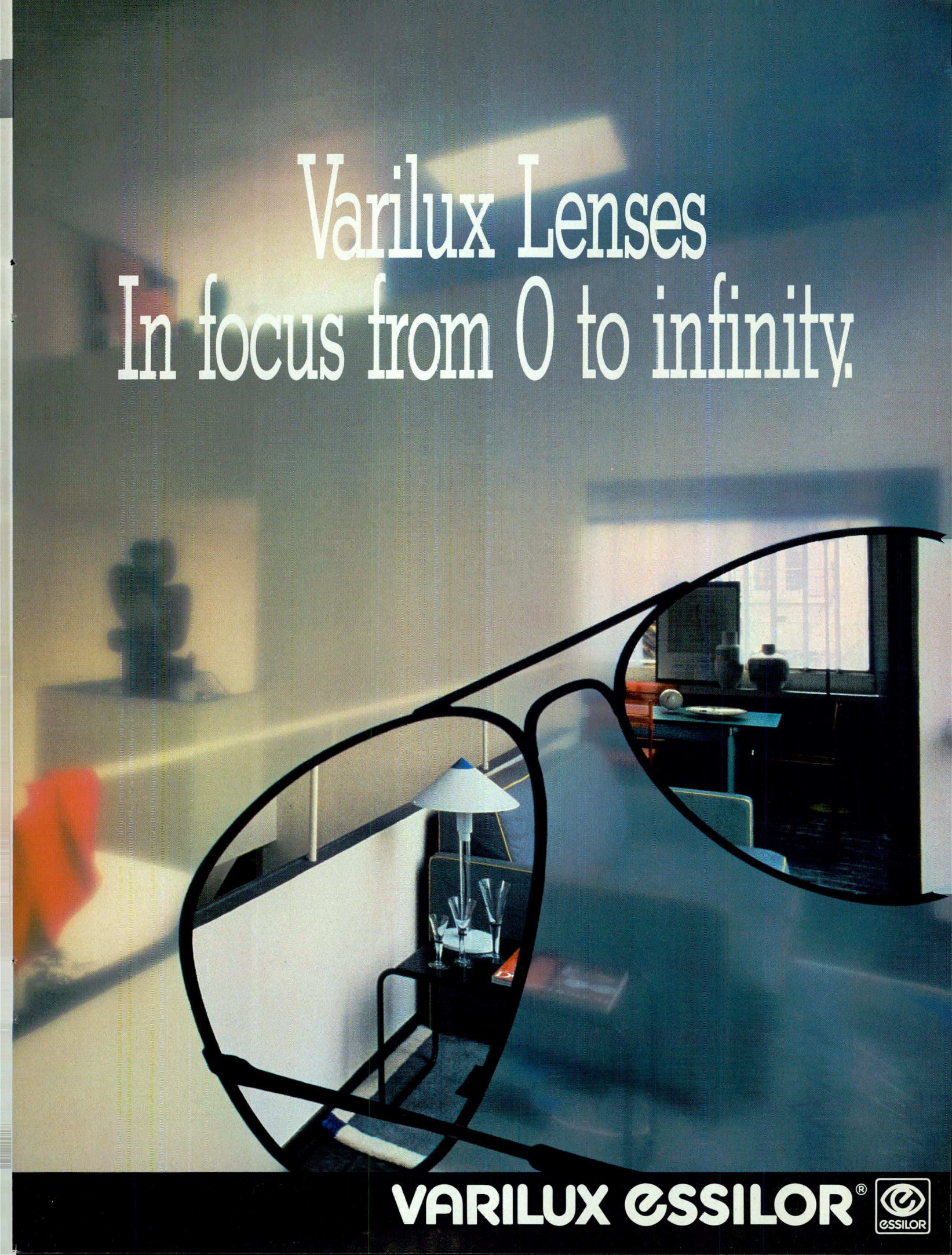
BOOK REVIEW

The Senses, H.B. Barlow and J.D. Mollon, New York, Cambridge University Press, 1982, 490 pp., illustrated.

Ce volume a été écrit par 13 auteurs dont deux sont professeurs dans des Ecoles d'Optométrie, les professeurs Millodot et Woodhouse. Les éditeurs du volume, Barlow et Mollon, ont publié un traité d'anatomie et de physiologie sensorielle destiné aux étudiants de médecine, de psychologie, d'optométrie, d'otologie et d'ophtalmologie. Le volume contient les résultats de recherches récentes sur les sujets abordés tout en maintenant une perspective historique. Les textes sont précis tout en n'éliminant pas les sujets douteux ou controversés. Les problèmes sont abordés d'un point de vue théorique et clinique.

Les 12 premiers chapitres sont susceptibles d'intéresser un praticien qui désire réviser des notions fondamentales sur l'anatomie de l'oeil, l'optique de l'oeil, l'accommodation, les aspects biochimiques de la vision, la physiologie de la rétine, la psychophysique de la vision, la perception de l'espace, la motilité oculaire, le strabisme, la vision des couleurs et la neurophysiologie de la vision. Chaque chapitre peut être lu séparément, ce qui représente un avantage certain pour le lecteur pressé. Le volume ne pourrait probablement pas être utilisé comme manuel dans un cours d'optométrie étant donné que les textes ne contiennent pas de description et d'analyse suffisamment détaillées. Les chapitres qui traitent de la vision sont susceptibles d'intéresser des praticiens qui désirent réviser rapidement des sujets étudiés depuis plus de 10 ans. Chaque chapitre contient une liste bibliographique indexée qui permet d'approfondir les sujets traités par les meilleurs auteurs. Le volume devrait faire partie de la bibliothèque ou de la bibliographie d'un clinicien.

Jacques Létourneau, Ph.D.
Professeur titulaire
Ecole d'Optométrie
Université de Montréal.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A dry eye is a thirsty eye. Thirsty for comfort. So each of our tear products was designed to quench this thirst with soothing lubrication.

Tears Plus™ quenches your dry eye patient's thirst for comfort because comfort is built into its formulation. The polyvinyl alcohol soothes burning, gritty dry eyes. Povidone adds enhanced lubrication and protection without increasing the viscosity. Then, these two moisturizing ingredients are combined in a nonbuffered, isotonic solution. So Tears Plus quickly adjusts to the pH of the eye and brings the comfort your patients are thirsting for.

Our other tear products are comforting, too. Liquifilm® Tears is the time-tested comfortable tear. It's been bringing relief to dry eye sufferers for years. Liquifilm® Forte is made for your clinical dry eye patient who requires a more viscous tear. And, as adjunctive therapy for these same patients, Lacri-Lube® S.O.P.® ointment for nighttime lubrication and protection.

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WILLOWDALE, ONTARIO

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Calendar

1984

April
Alberta Optometric Association Continuing Education
— Annual Interdisciplinary Symposium —
— Sports Vision —
Calgary, Alberta
Information: Gordon Hensel, O.D.
Chairman, Professional Services Enhancement Committee
c/o A.O.A.
The Professional Centre
#2 - 9333 - 50th Street
Edmonton, Alberta
T6B 2L5
(403) 468-1203

April 1-7
Canada's 40th Annual National Health Week
Theme: Sexually Transmitted Disease (STD) — Out of Control!
Information: Health League of Canada
1560 Bayview Ave., Suite 304
Toronto, Ontario
(416) 486-6023

April 9-13
Diamond Jubilee
International Optometric Congress
Cape Town, South Africa
Information: South African Optometric Association
P.O. Box 3966
0001 Pretoria
South Africa
Tel. 012 21-7438

April 11-14
Frontiers of Optometry
1st International Congress of the British College of Ophthalmic Opticians (Optometrists)
London, England
Information: Michael J. DiCola
c/o C.A.O.

May 9-12
Ontario Association of Optometrists
Annual Meeting
Westin Hotel Ottawa
Information: Mr. Dennis Souder, Executive Director
(416) 923-1173
Suite 212 - 40 St. Clair Ave. W.
Toronto, Ontario
M4V 1M2

May 18-23
Expo/Optica '84
Madrid, Spain
Information: Rosina Gomez-Baeza
General Manager
IFEMA
Avda. de Portugal, S/N
Apartado de Correos 11.011
Madrid-11, Spain

May 26-29
Optica '84
International Trade Fair for Ophthalmic Optics
Cologne, Germany
Information: KolnMesse
Messe- und Ausstellungs-Ges.m. b. H. Cologne
Messeplatz, P.O. Box 21 07 60, D-5000
Cologne 21
Germany

May 30 - June 2
XII Congreso Nacional de Fedopto
Bogota, Colombia
Information: Dr. Pablo Henao de Brigard
Secretario
Federacion Colombiana de Optometras
Personeria Juridica 0914
NIT 60.030.895
Apartado 53259
Bogota D.E.
Colombia

June
Alberta Optometric Association
Continuing Education
— Practice Management —
Red Deer, Alberta
Information: Gordon Hensel, O.D.
Chairman, Professional Services Enhancement Committee
c/o A.O.A.
The Professional Centre
#2 - 9333 - 50th Street
Edmonton, Alberta
T6B 2L5
(403) 468-1203

Optometric Institute of Toronto
Continuing Education Summer Series - 1984

May 28 through June 2
June 11 through June 16
June 25 through June 30

June 1, 2 Dr. L. Catania
June 8, 9 Dr. I. Borish
June 29, 30 Dr. R. Manny

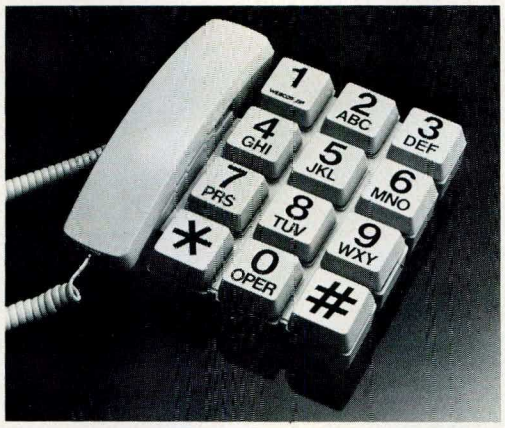
Information: Dr. M. Samek
815 Danforth Ave., Suite 301
Toronto, Ontario
M4J 1L2
(416) 461-2668

November 8-11
European Society of Optometry
18th Scientific Congress
Jerusalem Hilton, Israel
Information: Dr. Harvey Rosenwasser, O.D., F.A.A.O.
1518 Walnut Street
Merlin Tower, Suite 1401
Philadelphia, PA
19102, U.S.A.

1985
March 31 - April 8
5th Asian Pacific Optometric Congress
Rasa Sayang Hotel/Batu Ferringi Beach
Penang, Malaysia
Information: Dr. Damien P. Smith
Secretary-General
International Federation of Asian and Pacific Associations of Optometrists
7 Cookson Street
Camberwell 3124
Australia

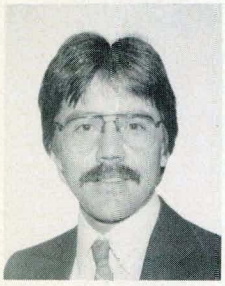
Webcor Jumbo Button Telephone

Webcor Electronics Inc. has introduced a new telephone that features special oversize keys. The phone is designed for those who are visually impaired and, in addition, the large keys also make dialing easier for people with dexterity impairment problems such as arthritis.



The Webcor Zip Model 767 Jumbo Button Telephone is available in Canada from:

Mr. J. Neil Martin
National Sales Manager
Webcor Electronics (Canada) Inc.
7676 Kimbal Street, Unit #1
Mississauga, Ontario
L5S 1J8



Meet B.C.'s New Executive Director

The British Columbia Optometric Association is pleased to announce the appointment of Mr. Thomas Little as Executive Director.

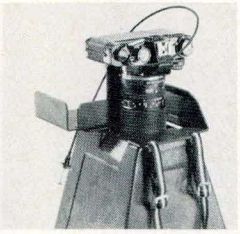
Mr. Little has been employed with the BCOA since July 1980. His initial role was on a part-time basis as Coordinator of Vision Care Plans, and he became Program Director on a full-time basis in February of 1982. At that time his role was expanded to include public and government relations.

During 1981 Mr. Little also served as newspaper editor/reporter for a B.C. monthly publication on rehabilitation.

Prior to joining BCOA, Mr. Little served from 1977 to 1980 as Public Information Coordinator for the Canadian Association of Optometrists. He graduated with a Bachelor of Journalism (Honours) degree from Carleton University in Ottawa where he also served as news editor of the weekly campus newsmagazine. He is 34, married and has three children and resides in Vancouver.

Prints of VDT Images

Kodak Canada offers a complete system for recording a VDT image in colour. The Kodak Instagraphic CRT (Cathode Ray Tube) Imaging Outfit includes a Kodak Instagraphic camera, an interfacing cone suitable for use with a wide variety of monitors, film and mounting hardware.



Further information is available from:

Kodak Canada Inc.
3500 Eglinton Ave. W.
Toronto, Ontario
M6M 1V3
(416) 766-8233

New Canadian F.A.A.O.'s

The American Academy of Optometry wishes to announce that the following Canadian Optometrists have been accepted as Fellows of the American Academy of Optometry in Houston, Texas on Nov. 12, 1983:

T. Evans. Don Mills, Ontario
R. Lidkea. Ft. Frances, Ontario
J. Thompson. Dawson Creek, British Columbia
R. Thompson. Bramalea, Ontario

The Admittance Committee for Section V (Canada) consists of the following Academy Fellows:

Howard Backman, Montreal, Quebec. Chairman.
Ralph Rosere, Dartmouth, Nova Scotia.
Jacques Sevigny, St. Romuald, Quebec.
Elizabeth Fretz, Listowel, Ontario.
Scott Brisbin, Edmonton, Alberta.
Bert Jervis, W. Vancouver, British Columbia.
James Johnson, Sechelt, British Columbia.

This Committee would like to encourage members of the C.A.O. in professional practices to apply for Fellowship in the American Academy of Optometry. To receive an application form contact:

American Academy of Optometry
5530 Wisconsin Ave., N.W., Suite 950
Washington, D.C. 20815
(301) 652-0905

The Committee would be happy to assist any applicants with information and guidance in the preparation towards Fellowship.

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