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Contact lens survey: The use of contact lenses for the treatment of astigmatism

Abstract

A nationwide survey was conducted on a broad population of vision care practitioners with the goal of determining current contact lens practice in the area of astigmatism, and, for the purpose of providing this information for educational institutions, industry, and contact lens practitioners. Surveys were sent via US mail and E-mail to optometrists, ophthalmologists, and certified ophthalmic technicians in all fifty states. Some of the data was analyzed based on practice mode, some on years in practice, and some on total responses. Overall, there was a broad range of responses of the amount of corneal cylinder required to fit toric RGP's. However, for soft torics there was a narrower range of responses. It was found that more experienced practitioners preferred to design their own toric RGP's. Professional school was the main source of learning to fit toric RGP's with the exception of practitioners with more than ten years of experience who utilized other sources of education more frequently. Volume of contact lenses prescribed varied more for soft sphere and soft torics than for RGP's. For high corneal and high residual cylinder soft toric lenses were preferred. Younger practitioners feel more of a need for more information on fitting toric RGP's.

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CONTACT LENS SURVEY: THE USE OF CONTACT LENSES FOR THE TREATMENT OF ASTIGMATISM

by

Dale Hoffmann
David Slagowski

A thesis submitted to the faculty
of the
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PACIFIC UNIVERSITY
FOREST GROVE, OREGON
for the degree of

Doctor of Optometry

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Advisor:

Jennifer Smythe, O.D.

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Dale Hoffmann was born and raised in Grand Forks, North Dakota. He attended the University of North Dakota, where he majored in Pre-Optometry. In 1994, he received his Bachelor of Science degree in Vision Science from Pacific University in Forest Grove, Oregon. He is currently a fourth year optometry student at Pacific University. Upon graduating with a Doctor of Optometry degree in May, 1997, he plans to begin a career in primary care optometry in Minnesota.

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ABSTRACT

A nationwide survey was conducted on a broad population of vision care practitioners with the goal of determining current contact lens practice in the area of astigmatism, and, for the purpose of providing this information for educational institutions, industry, and contact lens practitioners. Surveys were sent via US mail and E-mail to optometrists, ophthalmologists, and certified ophthalmic technicians in all fifty states. Some of the data was analyzed based on practice mode, some on years in practice, and some on total responses. Overall, there was a broad range of responses of the amount of corneal cylinder required to fit toric RGP's. However, for soft torics there was a narrower range of responses. It was found that more experienced practitioners preferred to design their own toric RGP's. Professional school was the main source of learning to fit toric RGP's with the exception of practitioners with more than ten years of experience who utilized other sources of education more frequently. Volume of contact lenses prescribed varied more for soft sphere and soft torics than for RGP's. For high corneal and high residual cylinder soft toric lenses were preferred. Younger practitioners feel more of a need for more information on fitting toric RGP's.

KEY WORDS:

Astigmatism, contact lens, practice mode, years practiced, soft toric, RGP toric, corneal cylinder, corneal astigmatism, with the rule, against the rule, RGP parameters, laboratory design.

INTRODUCTION

It is well-documented that there are many benefits of RGP contact lenses over hydrogel contact lenses. Some advantages of RGP's are durability, ease of care, superior clarity of vision, superior oxygen supply, abundant tear exchange, and lower maintenance cost.[1,2,3] Some advantages specific to astigmatic compensation are fewer parameter changes, high patient satisfaction with vision, and higher overall patient satisfaction.[3] Also, astigmatic patients with high visual sensitivity, as indicated by the Becherer Twist Test, may benefit from RGP's.[2]

Many practitioners have the perception that RGP lenses are complicated and not worth the hassle or expense, and therefore, may not fit them as often as soft torics for highly astigmatic patients.[4] Furthermore, practitioners may be apprehensive about fitting toric RGP's due to a perceived difficulty in fitting them. An article published by Contact Lens Spectrum states, "Because many practitioners consider toric RGP lenses too difficult and time-consuming for patients with high (or high residual) astigmatic correction, these patients are often fit with either a spherical RGP or soft toric lens".[5]

There may also be some apprehension about fitting any type of contact lens to compensate high astigmatism. Another article published by Contact Lens Spectrum states, "Believe it or not, a 1991 survey by the Contact Lens Council found that approximately one-third of all spectacle wearers interested in contact lenses are told by their eye care professional that they can't wear them because they have too much astigmatism".[6]

Previous surveys have addressed the contact lens prescribing trends in local geographic areas, within the United States, such as the state of Hawaii (Honda, 1984), the state of Wyoming (Jensen, 1984), and the state of California (Kim, 1987).[7,8,9] These surveys summarized preference for hydrogel versus RGP versus Hard (PMMA) materials in general, and specific brands of these materials. No previous surveys were found to specifically address contact lens compensation of astigmatism.

The goals of this survey are twofold: To provide data from a broad geographical area (the entire United States) and to summarize specifically the utilization of current contact lens technology available for the compensation of astigmatism by practicing vision care professionals.

The purpose of this survey is to provide educational institutions, industry, and contact lens practitioners a summary of the prescribing habits and contact lens designs currently being prescribed, in the United States, for the compensation of astigmatism.

METHODS

A cover letter and questionnaire (appendix A) were sent by US mail and by electronic mail to 971 randomly selected eyecare practitioners. The questionnaire consisted of ten questions in multiple choice and fill in the blank format. Optometrists, ophthalmologists, and certified ophthalmic technicians were surveyed and divided by mode of practice, the year beginning practice, and the year of beginning to fit contact lenses. Mode of practice included, group, retail, solo, HMO, government/military, educational, and other. Electronic mail was sent over America Online10, an internet provider. Three to ten optometrists names were randomly selected from each state out of the 1996 Blue Book of Optometry[11] for questionnaires sent by US mail. Ophthalmologists names were selected out of the 1986 Marquis Who's Who[12] for US mail questionnaires. America Online's member directory was used for e-mail addresses of optometrists, ophthalmologists, and certified ophthalmic technicians. Optometrists were also selected out of an e-mail list in the Review of Optometry[13].

CONTACT LENS SURVEY: THE USE OF CONTACT LENSES FOR THE TREATMENT OF ASTIGMATISM

1. Are you a/an:
   ___ A. OD
   ___ B. MD
   ___ C. COT
   ___ D. other ( )

2. What type of practice do you have?
   ___ A. HMO
   ___ B. Retail Chain
   ___ C. Solo Practice
   ___ D. Group Practice
   ___ E. Government/Military
   ___ F. Educational
   ___ G. Other ( )

3. What year did you begin practicing? ( )

4. When did you begin fitting contact lenses? ( )

5. In general, what amount of corneal cylinder would you consider necessary to fit soft and RGP toric contact lenses?

   A. Soft toric
   ___ 0-0.75D
   ___ 0.75-1.25D
   ___ >1.25D

   B. RGP toric

ATR	WTR	
___	___	<1.50
___	___	1.50-2.00D
___	___	2.00-2.50D
___	___	2.50-3.00D
___	___	>3.00D

6. When fitting RGP lenses, do you design your own or do you rely on the lab for suggested parameters?

	OWN	LAB
RGP Spheres	___	___
RGP Torics	___	___

7. How did you learn to fit contact lenses for astigmatism?
   ___ A. Professional School
   ___ B. CE Courses
   ___ C. Textbooks (Post-graduate reading)
   ___ D. Current Literature (Journals)
   ___ E. Other ( )

8. Place a check mark in the appropriate column corresponding to the number of each type of contact lens you prescribe per month for the correction of astigmatism

CL Type	Never use	0-5	5-10	10-15	15-20	>20
A. Soft Sphere	___	___	___	___	___	___
B. Soft Toric	___	___	___	___	___	___
C. PMMA	___	___	___	___	___	___
D. RGP Sphere	___	___	___	___	___	___
E. RGP Aspheric	___	___	___	___	___	___
F. Front Toric RGP	___	___	___	___	___	___
G. Back Toric RGP	___	___	___	___	___	___
H. Bitoric SPE (Lensometer cyl equal to the radiuscope cyl)	___	___	___	___	___	___
I. Bitoric GPE (Lensometer cyl not equal to the radiuscope cyl)	___	___	___	___	___	___
J. Other ( )	___	___	___	___	___	___

9. Cases

   From the contacts listed in question 8 above, please fill in your preferred lens choice for the following cases

   Case A: A patient has 2D WTR cylinder with the following K's and refraction: 43.00/45.00 @ 090 -1.00-3.00x180
   Preferred CL: _____

   Case B: A patient has 2D ATR cylinder with the following K's and refraction: 43.00/43.00 @ 090 -1.00-2.00x090
   Preferred CL: _____

10. Would you like more information on fitting RGP toric contact lenses? ( )

RESULTS:

Of the 498 mailed surveys, 198 were returned. Of the 473 E-mailed surveys, 44 were returned. Twelve mailed and eight E-mailed surveys were unusable because the responding practitioners are either retired, do not fit contact lenses, or the survey forms were incomplete.

Data on the 222 total usable surveys were entered into a Macintosh computer and analyzed. Data from several survey questions have been analyzed separately for each practice mode category, and the results of each category compared to each other. For these analyses the data have been normalized into percentages of surveys returned in each category, to prevent skewing of results for categories with more replies, so accurate comparisons between categories can be made.

There was an insufficient number of MD (ophthalmologist) replies (5) and COT (certified ophthalmic technician) replies (1) to justify classifying them separately, by title.

As illustrated in Figure 1, most of the surveys were completed by solo practitioners (49.5%) followed by group practitioners (30.2%), then retail (12.2%), and "other" (8.1%). The category labeled "other" includes government-employed, educational institution-employed, HMO, consultant, and other modes of practice, all of which had too few responses to justify analyzing as separate categories.

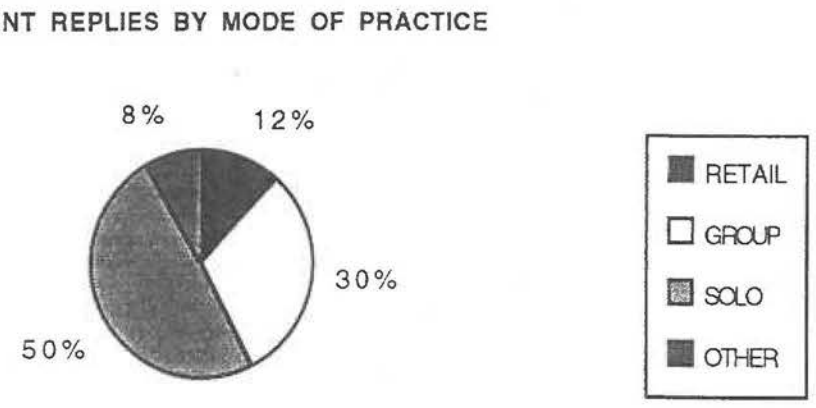

Figure 1.

Corneal Cylinder Magnitude Required For Fitting Soft and RGP Torics:

Figures 2 through 7 illustrate the magnitude of corneal cylinder (astigmatism) considered necessary to fit soft and RGP toric contact lenses. Responses are separated by practice mode category in each of the three sections; RGP compensation of ATR corneal astigmatism, RGP compensation of WTR corneal astigmatism, and hydrogel compensation of any orientation of corneal astigmatism. Each section is illustrated with two graphs (by practice mode category and year began practicing category). Each of these graphs shows, for each interval of corneal astigmatism magnitude given as a choice in survey question 5, the percentage of each practice mode category (Figures 2, 4, and 6) or year began practicing category (Figures 3, 5, and 7) that chose that magnitude.

Figures 2 and 3 show that the highest percentage of practitioners surveyed, separated into practice mode and year began practicing, respectively, chose the magnitude range of 0.75D-1.25D regardless of practice mode or year began practicing. A much lower percentage required higher magnitude of corneal cylinder to fit soft torics (>1.25D), regardless of practice mode or year began practicing. As expected, the lowest response for all practice modes and categories of year began practicing was the magnitude range of 0-0.75D.

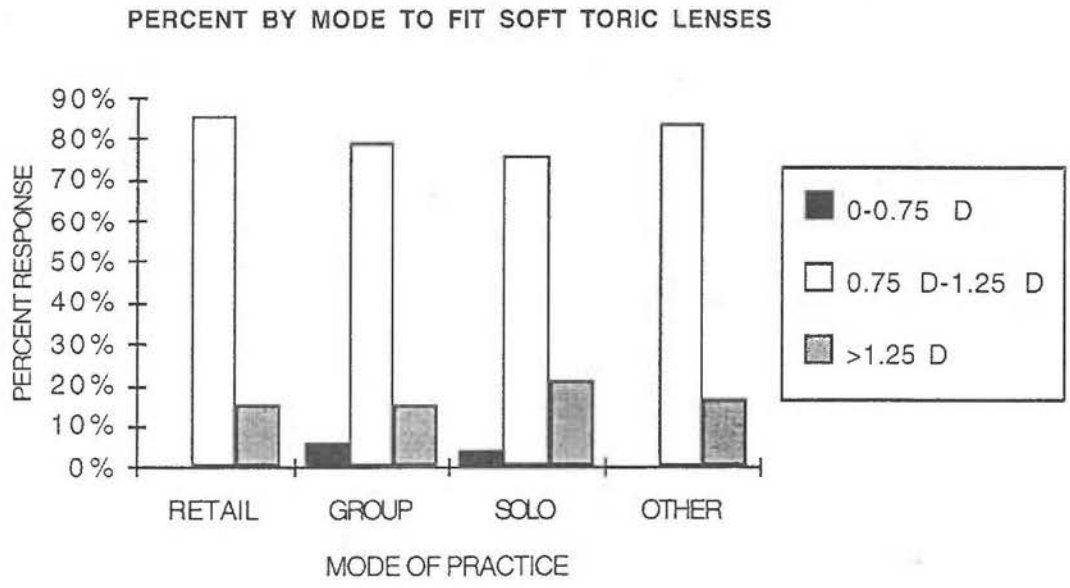

Figure 2.

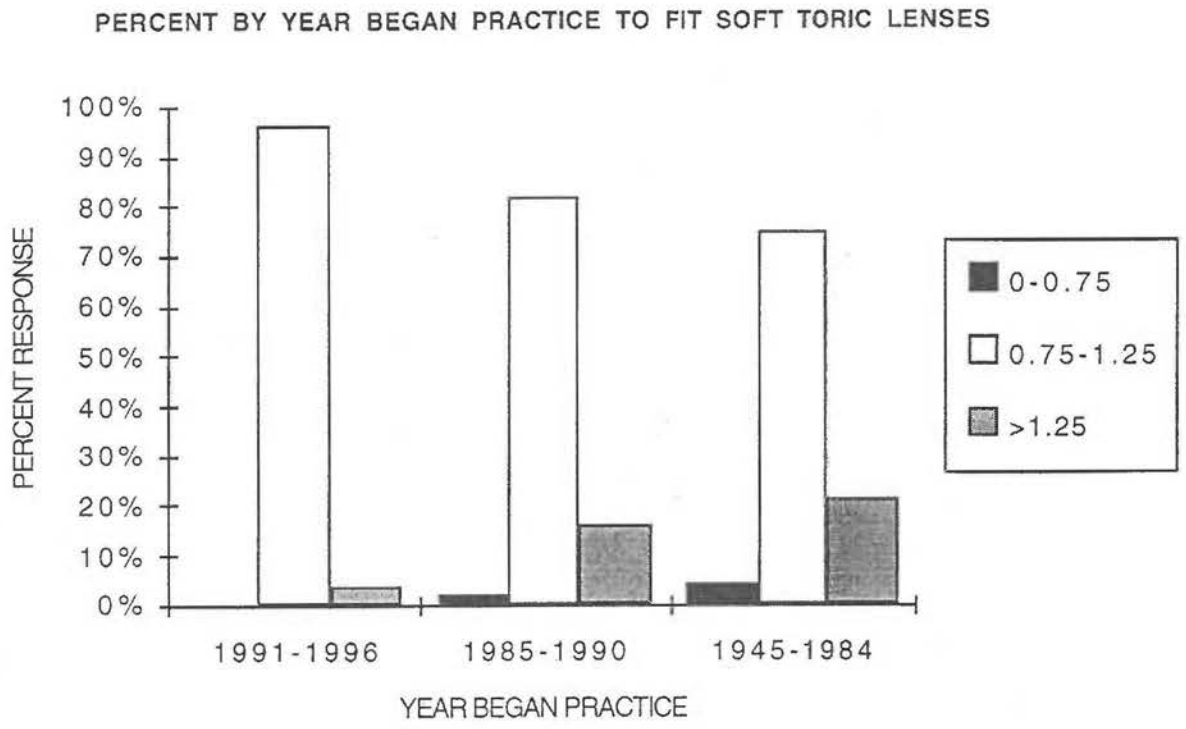
PERCENT BY YEAR BEGAN PRACTICE TO FIT SOFT TORIC LENSES
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
PERCENT RESPONSE
0-0.75
0.75-1.25
>1.25
1991-1996
1985-1990
1945-1984
YEAR BEGAN PRACTICE

Figure 3.

The results for toric RGP compensation of both ATR and WTR corneal cylinder are more variable than for soft toric. Figure 4 shows that for ATR cylinder there is not one single magnitude range choice that all practice mode categories chose more often than any others. 75% of Retail and Group practice mode choices are in the three magnitude range categories that comprise the larger (combined) magnitude range of 1.50D to 3.00D. Of the Solo practitioners 56% chose within the combined range of <1.50D to 2.00D, while 65% of the "Other" category chose within the combined range of 2.00D to 3.00D.

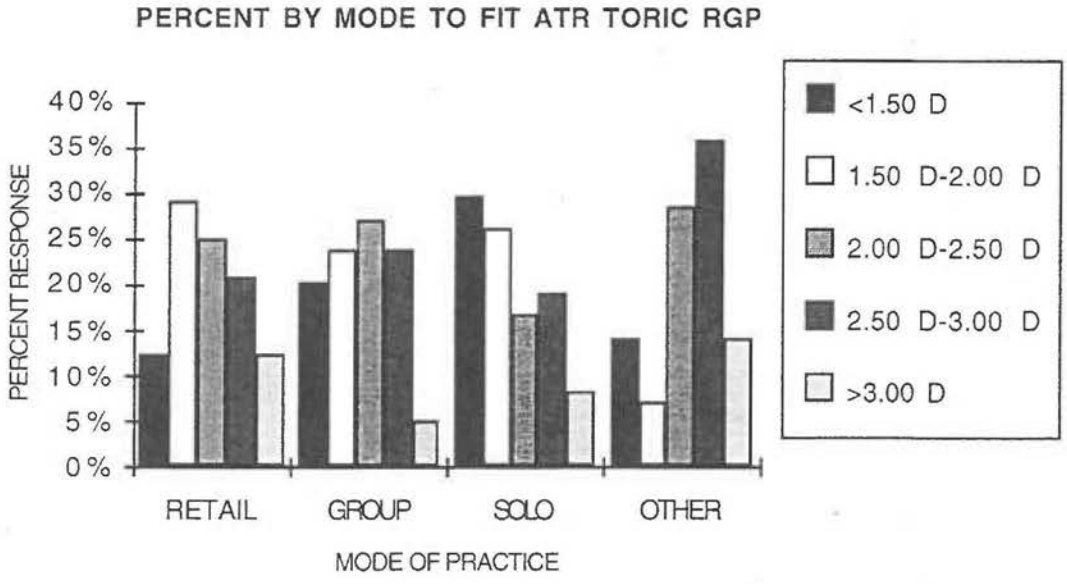

Figure 4.

In Figure 5 the 1991-1996 and 1985-1990 year began practice categories match closely with 84% and 78%, respectively, falling within the combined range of 1.50D to 3.00D ATR corneal cylinder. The 1945-1984 category also had a high percentage within this range (64%), however, the magnitude range choice most frequently chosen was <1.50D at 28%.

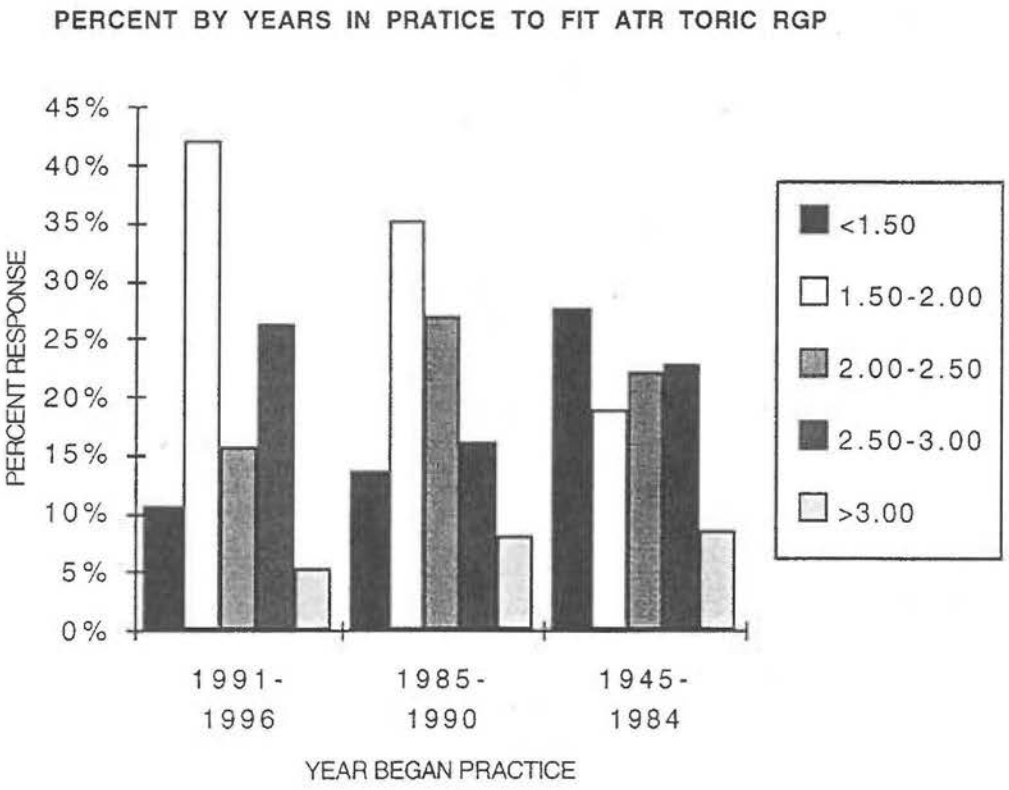

Figure 5.

For the fitting of RGP's for WTR corneal cylinder, Figure 6 shows that all practice mode categories produced the highest percentages of choices in the combined WTR magnitude range of 2.00D to >3.00D, with Retail at 72%, Group at 78%, Solo at 67% and "Other" at 92%. It is notable that the "Other" category overwhelmingly chose the magnitude range choice of 2.50D-3.00D more frequently than any of the others at 71%.

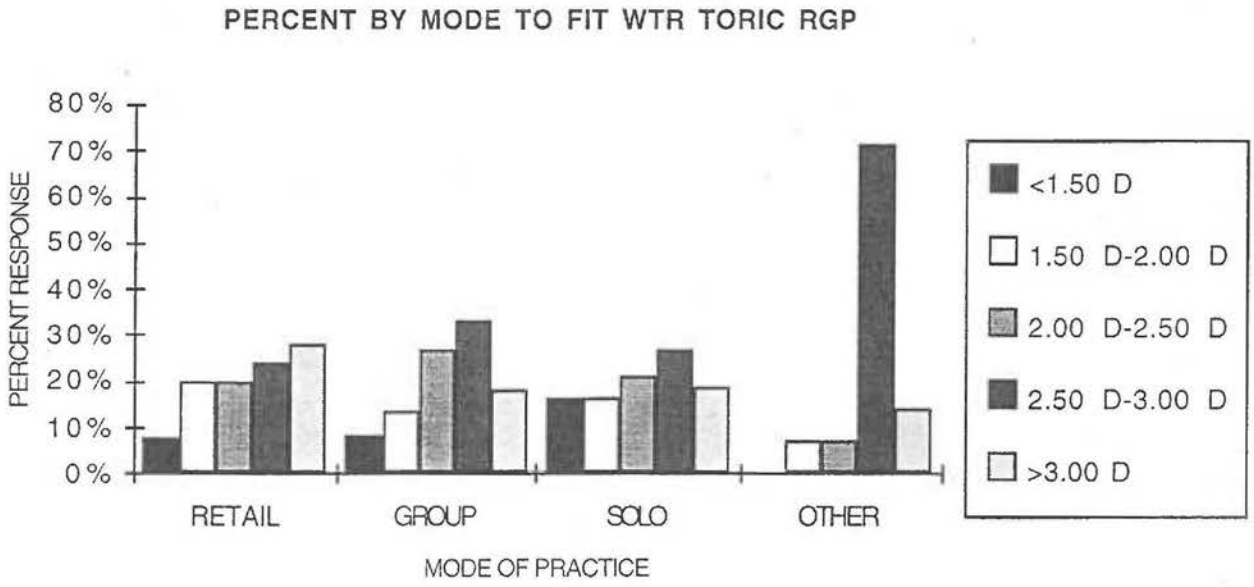

Figure 6.

The analysis of RGP compensation of WTR corneal cylinder correlated with year began practicing, as illustrated by Figure 7 shows that, similar to that of ATR cylinder, the 1991-1996 and 1985-1990 categories match closely. For these, the combined range of 1.50D to 3.00D was chosen most frequently at 70% and 75%, respectively. The 1945-1984 category overwhelmingly chose the 2.00D to 2.50D range most frequently.

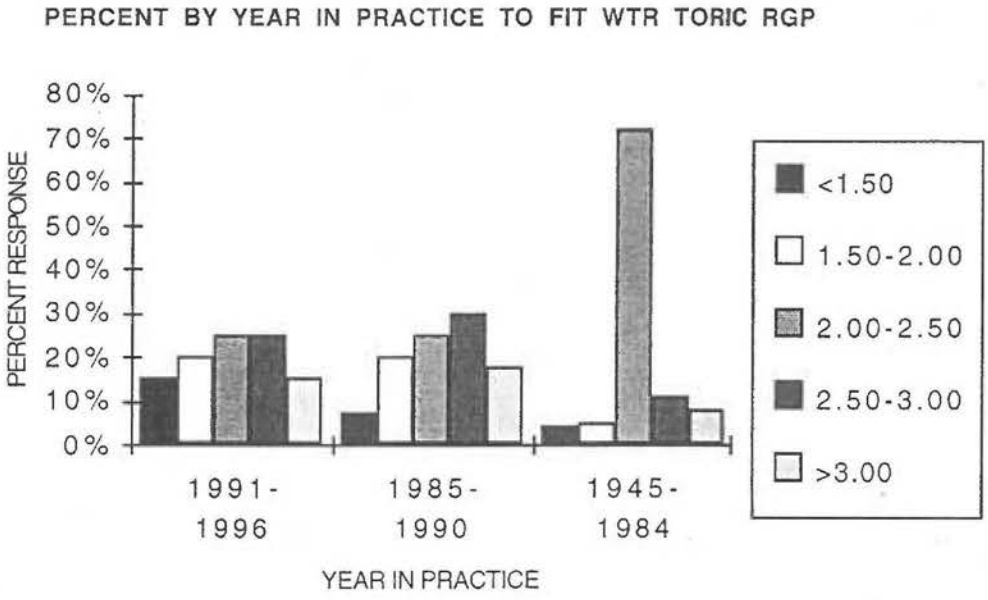

Figure 7.

RGP Parameter Determination; Own Design Versus Lab Design:

Figures 8 and 9 illustrate , for the fitting of sphere and toric RGP's, the utilization of contact lens lab design versus own design for the determination of parameters.

Figure 8 shows preference corresponding to practice mode. The same pattern exists for all practice mode categories, with a higher percentage preferring to design their own RGP spheres and to utilize the contact lens lab to design the toric RGP's they prescribe. The difference between the percent of own design and lab design is greater for toric RGP's than for sphere RGP's.

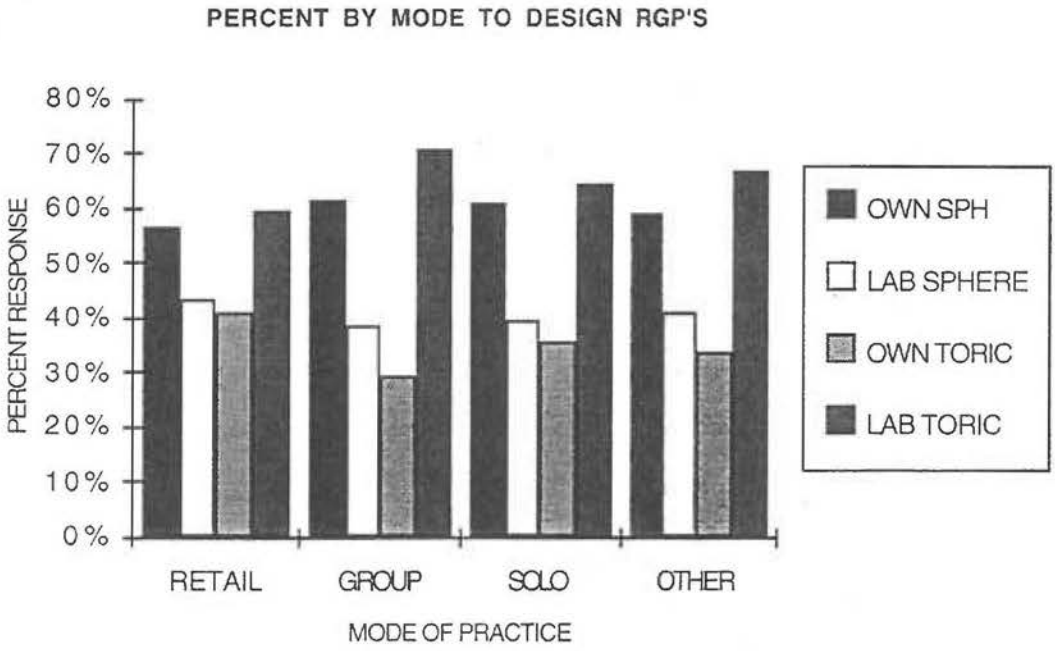

Figure 8.

Figure 9 shows preference corresponding to year began practicing. A higher percentage of all "year began practicing" categories chose the own design option for RGP spheres. For RGP torics, the 1985-1990 and 1991-1996 categories chose the lab design option, while the 1945-1984 majority preferred to design their own. Again, generally, the difference between percent of own design and lab design is greater for toric RGP's. The exception is the 1945-1984 category.

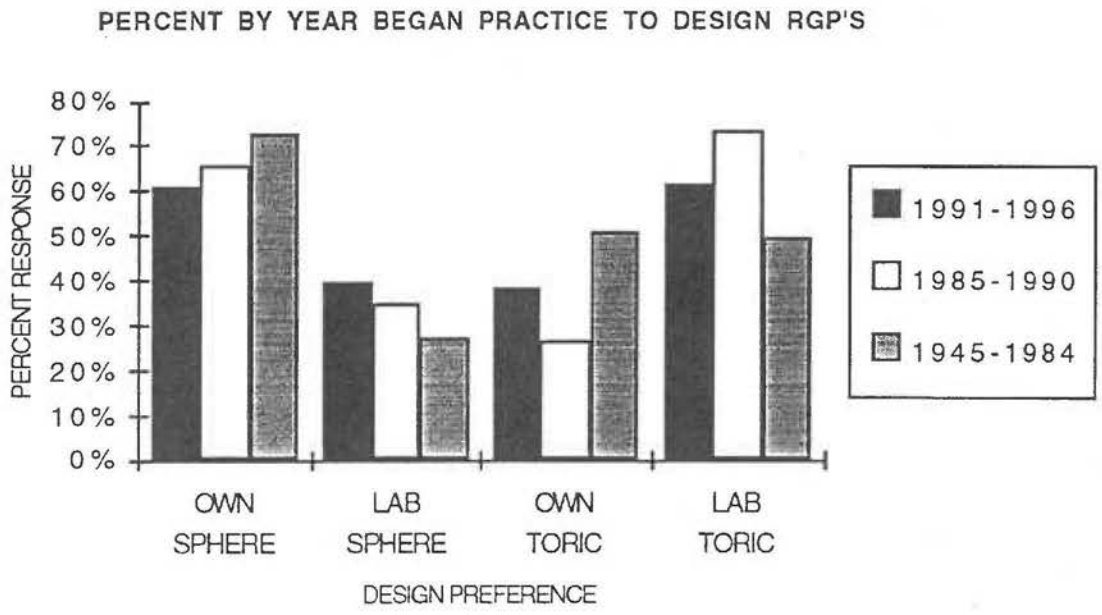

FIGURE 9.

Sources of Learning For Astigmatic Contact Lens Fitting:

Figures 10 and 11 illustrate the sources from which practitioners surveyed learned to fit contact lenses for astigmatism. Figure 10 represents the sum of all responses for each learning mode. The majority (41.6%) learned in professional school, followed by continuing education (18.4%), then current literature (15.4%), and textbooks (12.8%). 11.8% learned from other unidentified sources.

TOTAL RESPONSE TO TYPE OF EDUCATION IN FITTING CONTACT LENSES

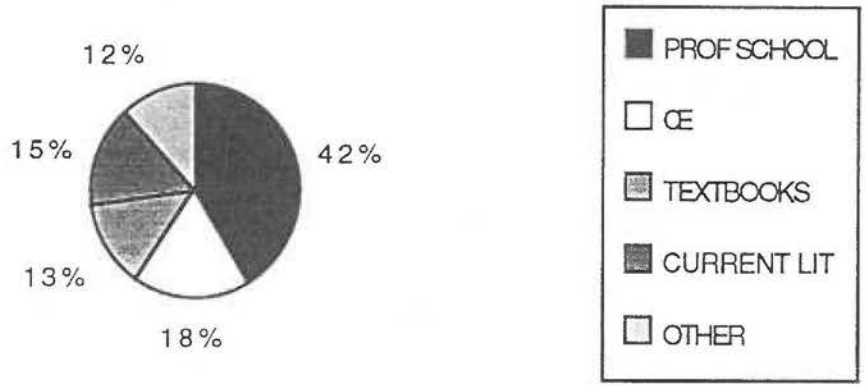

Figure 10.

Figure 11 shows the sources from which practitioners surveyed, separated into "year began practicing" categories, learned to fit contact lenses for astigmatic patients. Professional school was the option with the highest percent of responses for all categories of year began practicing. Generally, the remaining responses were spread fairly evenly among the other learning source options for all categories. It is notable that the 1945-1984 category showed a lower percentage of responses than the other two for professional school and higher percentages of responses for all other learning source options.

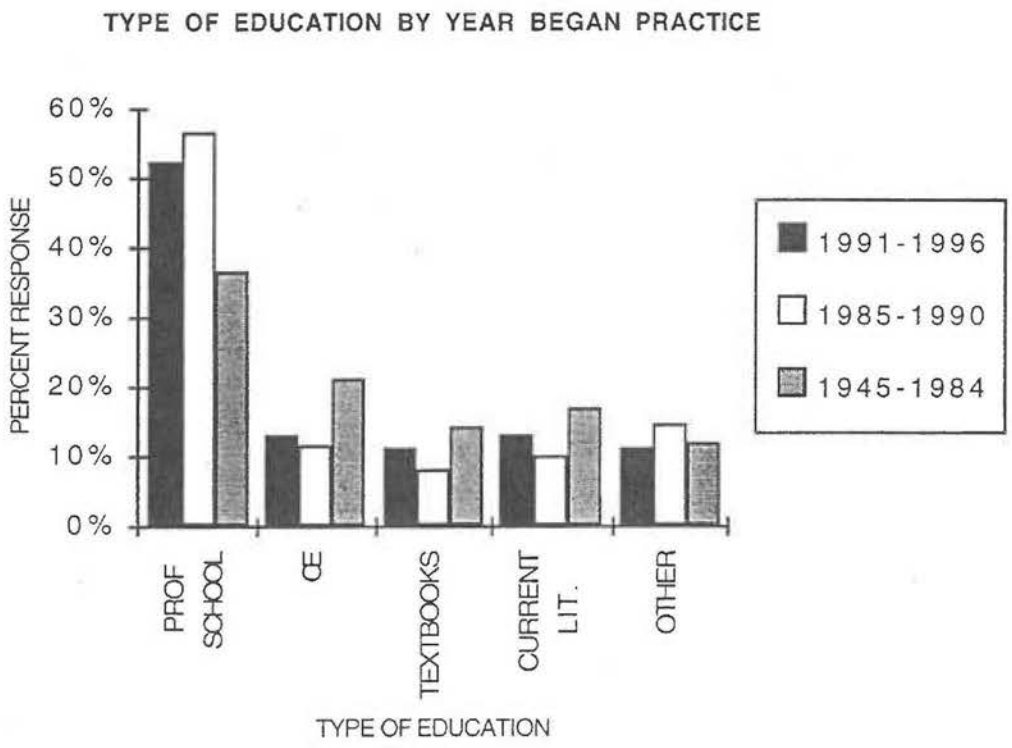

Figure 11.

Many practitioners surveyed answered more than one source of learning. Therefore, the percentages shown represent the sum of subtotals for each learning source choice in survey question 7. They are not to be interpreted as the only learning source for their respective number of practitioners.

Contact Lenses Prescribed Per Month By Type:

The number of each type of contact lens prescribed per month for the compensation of astigmatism is illustrated by the series of Figures 12 through 20. The number prescribed by practitioners in each practice mode category is represented by percentage of the total number prescribed. Figures 12 and 13 show no clear pattern that exists for all practice mode categories for soft sphere and soft toric types. Figure 12 shows that, for soft sphere, a high percentage of choices fell within the combined range of 0 to 10 fit per month in the Retail and Solo categories. Group practice mode showed high percentages in the 0-5, 5-10, and >20 "fit per month" choices, while "Other" was high for the "Never", 5-10, and >20 choices. Generally, the 0-5 choice was highest among the different practice modes.

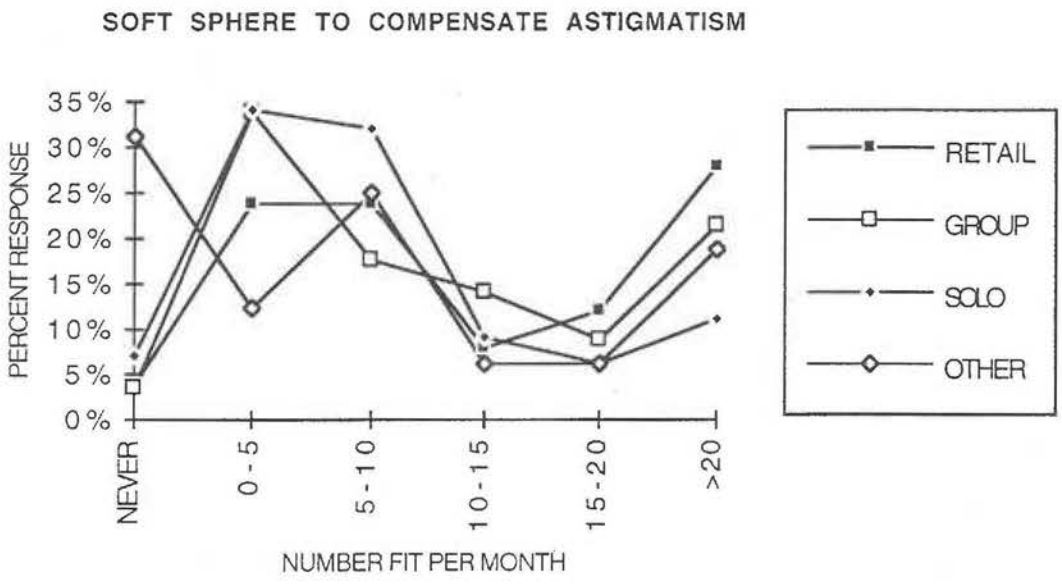

Figure 12.

Figure 13 shows, that for soft toric, Retail was highest in the 5-10 choice. Solo and Group were high in the 0-5 choice, somewhat less in the 5-10 choice, and much lower than in all others. The "Other" practice mode category most frequently chose within the combined range of 0-10 fit per month. Generally the 0-5 choice was highest among the different practice modes.

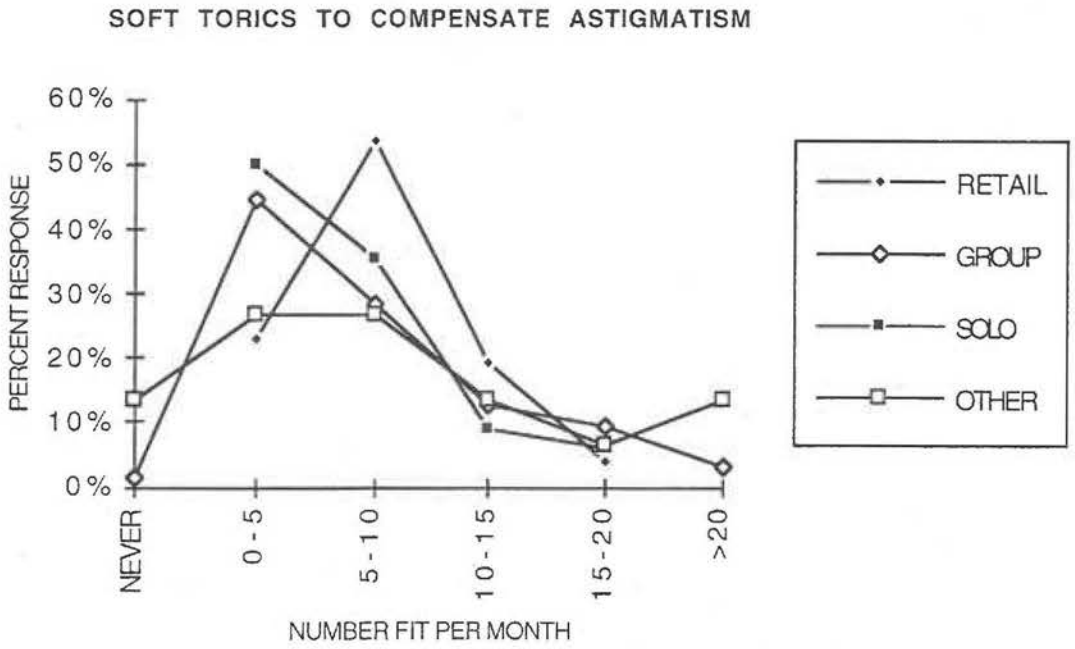

Figure 13.

Figures 14-20 show clear patterns between practice mode categories. In Figure 14, for PMMA the "Never" choice was most frequently chosen and, at much lower percentages, the 0-5 choice for all modes.

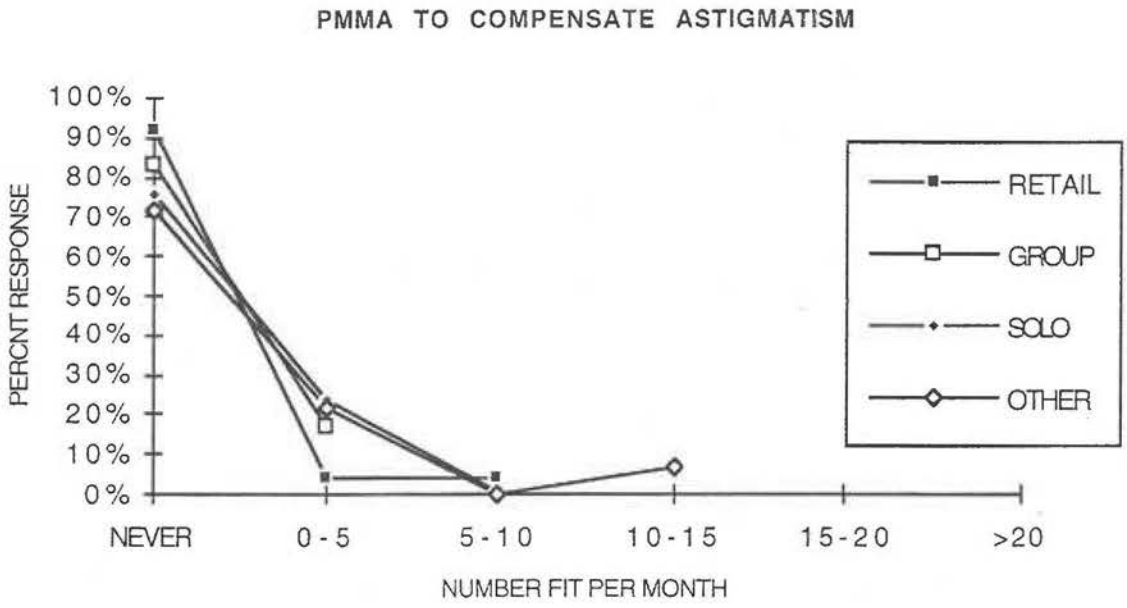

Figure 14.

For RGP Sphere, Figure 15 peaks at the 0-5 choice and slopes to the 5-10 choice, with all other choices much lower. The exception is the "Other" practice mode category, which had a notable percentage of "Never" responses.

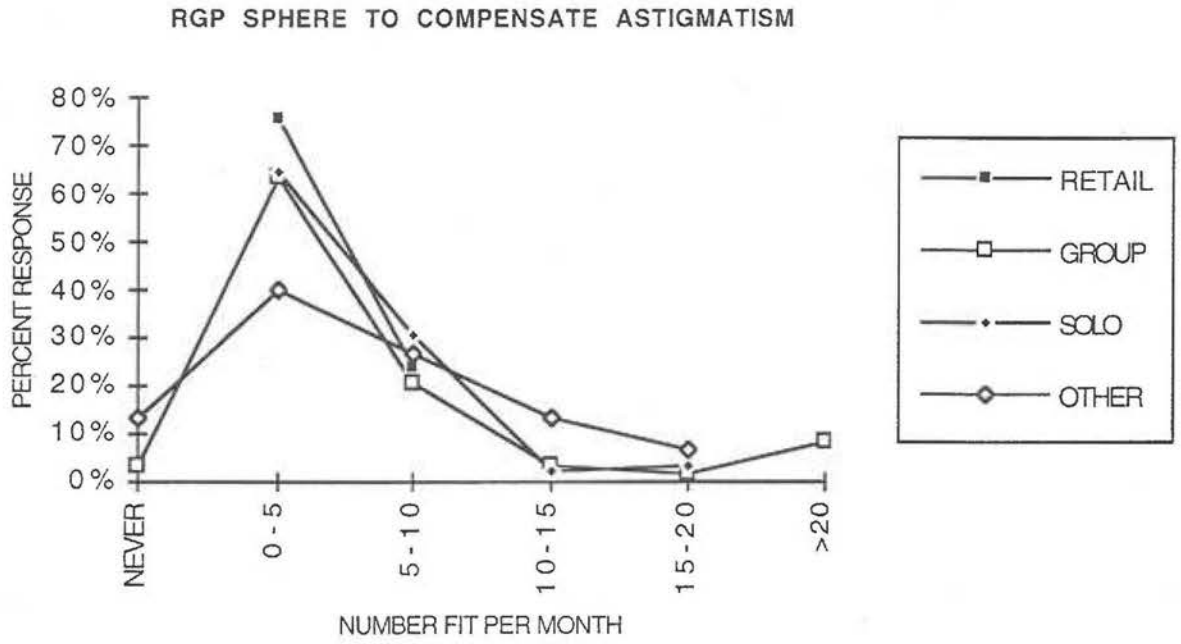

Figure 15.

For RGP Aspheric, in Figure 16, clearly all practice modes were in agreement with the 0-5 choice most frequently chosen, and "Never" also chosen fairly frequently.

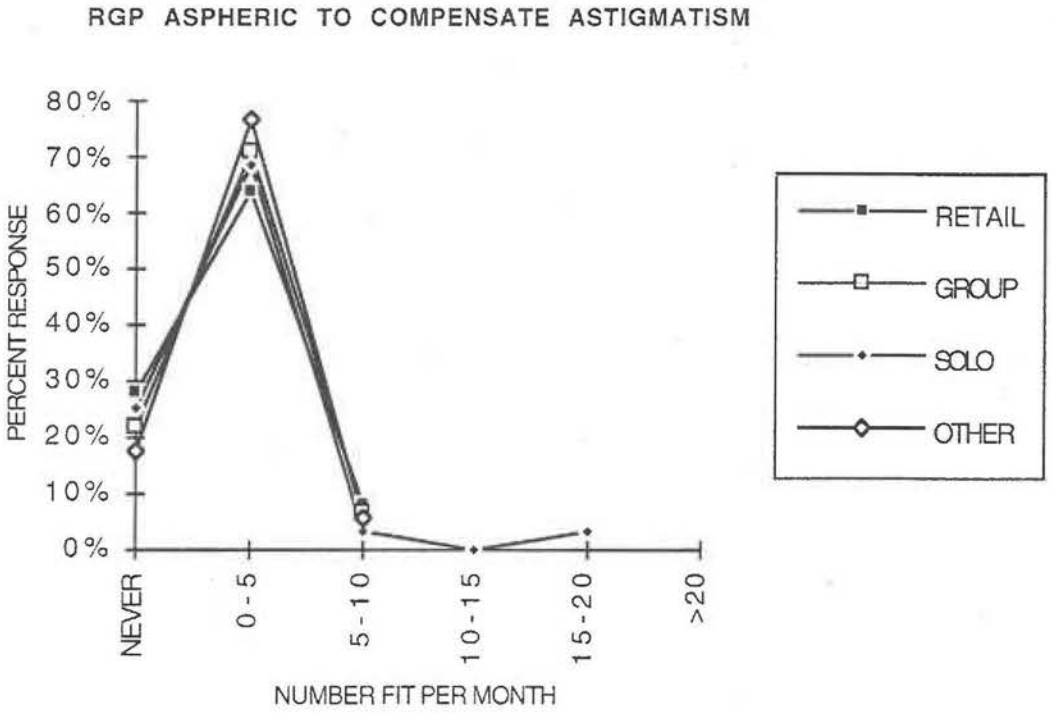

Figure 16.

For Front Toric RGP, Figure 17 shows "0-5" chosen most often and "Never" also chosen quite frequently.

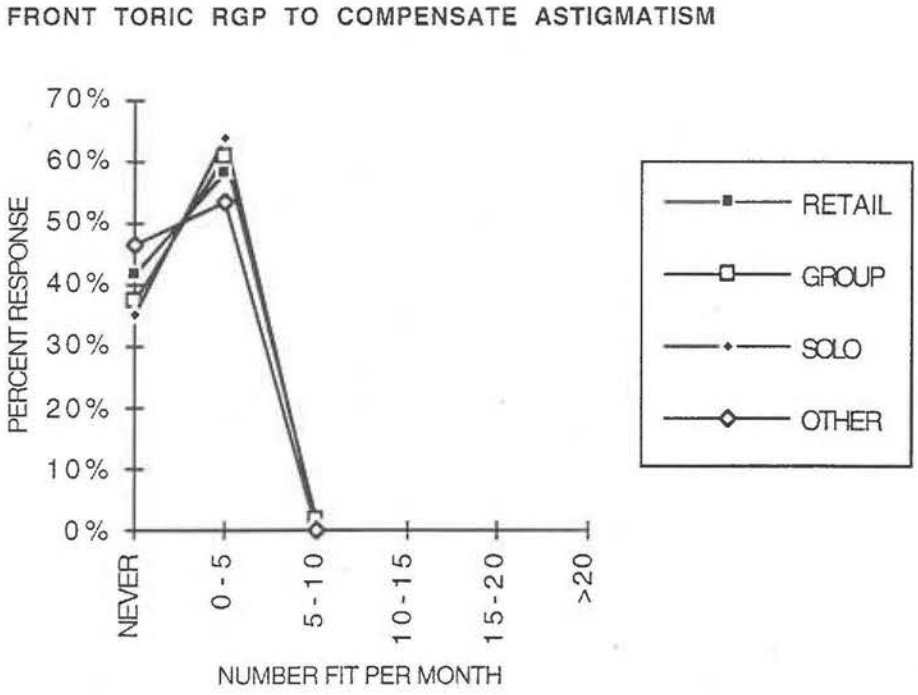

Figure 17.

Figure 18 shows that most practitioners prescribe Back Toric RGP's 0-5 times per month, while some never prescribe them.

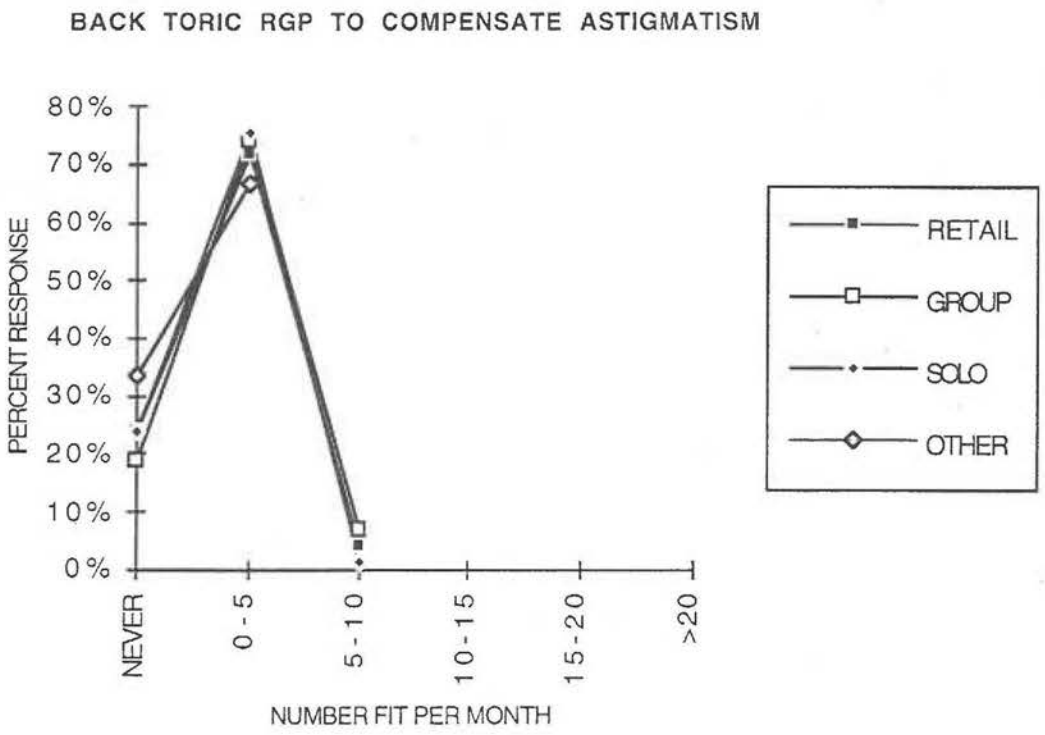

Figure 18.

Figures 19 and 20, for Bitoric SPE and Bitoric CPE, respectively, show that practitioners prescribe them 0-5 times per month. However, for Bitoric CPE, the "Never" choice was slightly more chosen by Retail and "Other" practice modes, and, for Bitoric SPE was chosen less frequently for all modes.

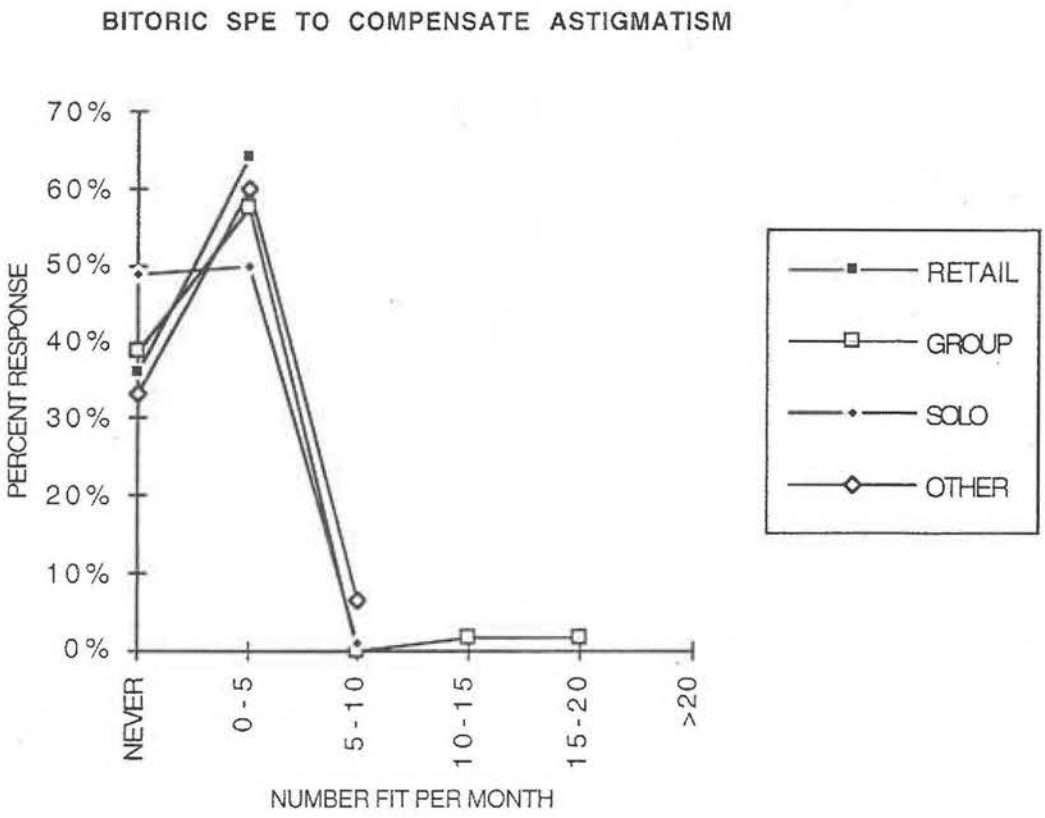

Figure 19.

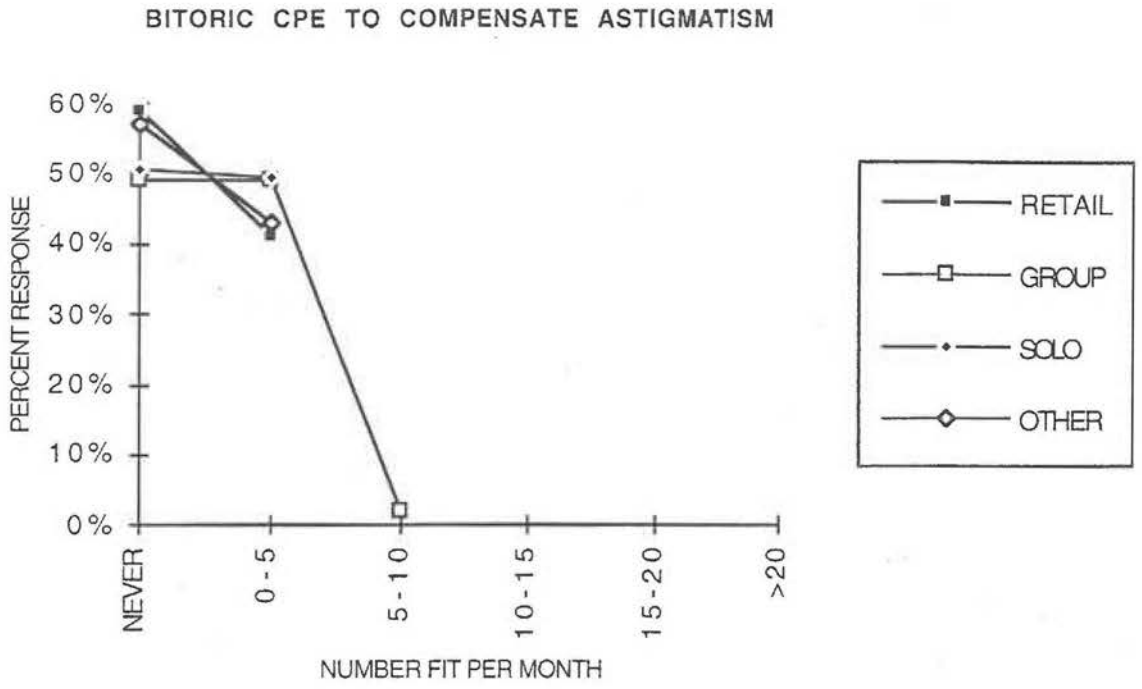

Figure 20.

Case Examples with Contact Lens Type Preference:

Figures 21 through 24 show the preferred lens type choices for specific case examples. Case A is 3D WTR cylinder, all of which is corneal. The highest percentage of all four practice mode categories, as illustrated by Figure 21, chose soft toric as the lens of choice. The RGP sphere was the second most frequently chosen lens type for Group and Solo practitioners, while retail chose RGP aspheric and "Other" chose Bitoric SPE. The least frequently chosen lens type by all practice modes was Front Toric RGP. However, both retail and "Other" had an equal percentage of responses for Bitoric CPE as for Front Toric RGP (0%).

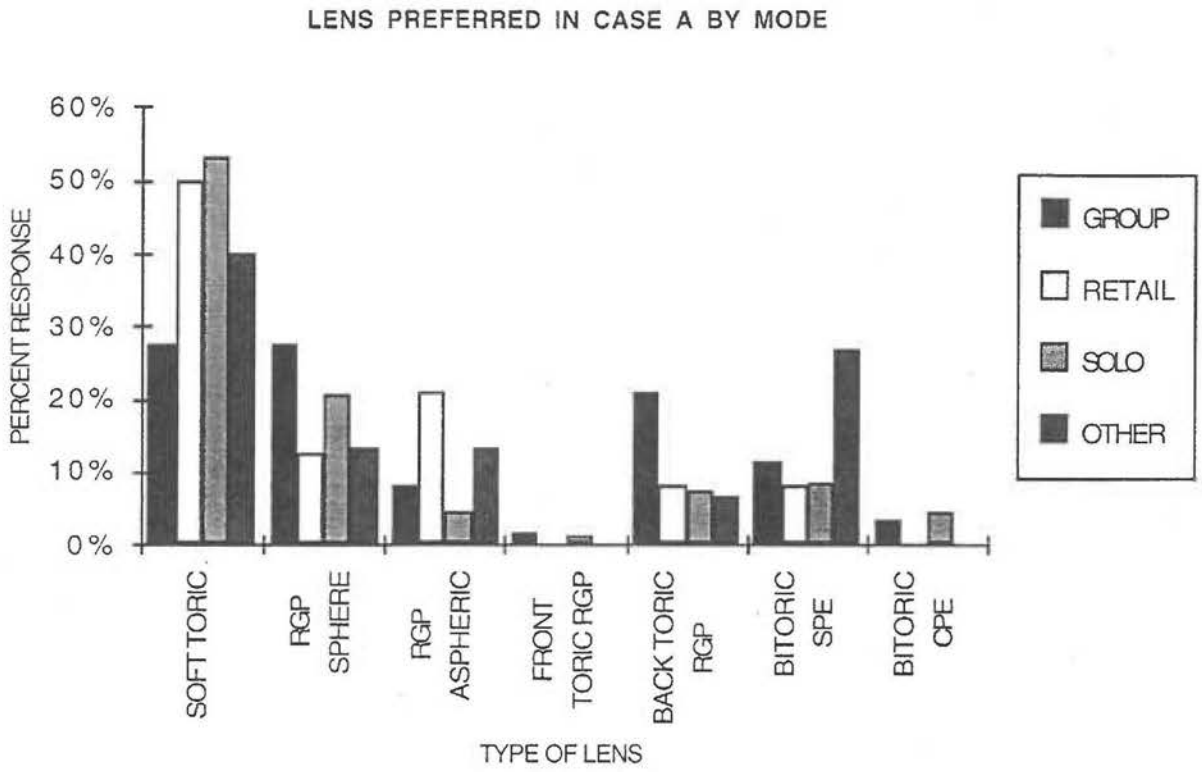

Figure 21.

The same general pattern as shown in Figure 21 exists in Figure 22, which illustrates the correspondence of number of years practiced to preferred lens type for Case A. The highest percentages of all categories of years practiced chose Soft Toric, with RGP sphere as the second most frequently chosen. The exception is that the 1985-1990 category chose Bitoric SPE. Again, the least chosen contact lens types were Front Toric RGP and Bitoric CPE for all categories of year began practicing. Not shown are PMMA and Soft Sphere, which were not chosen by any practitioner surveyed, regardless of practice mode or year began practicing.

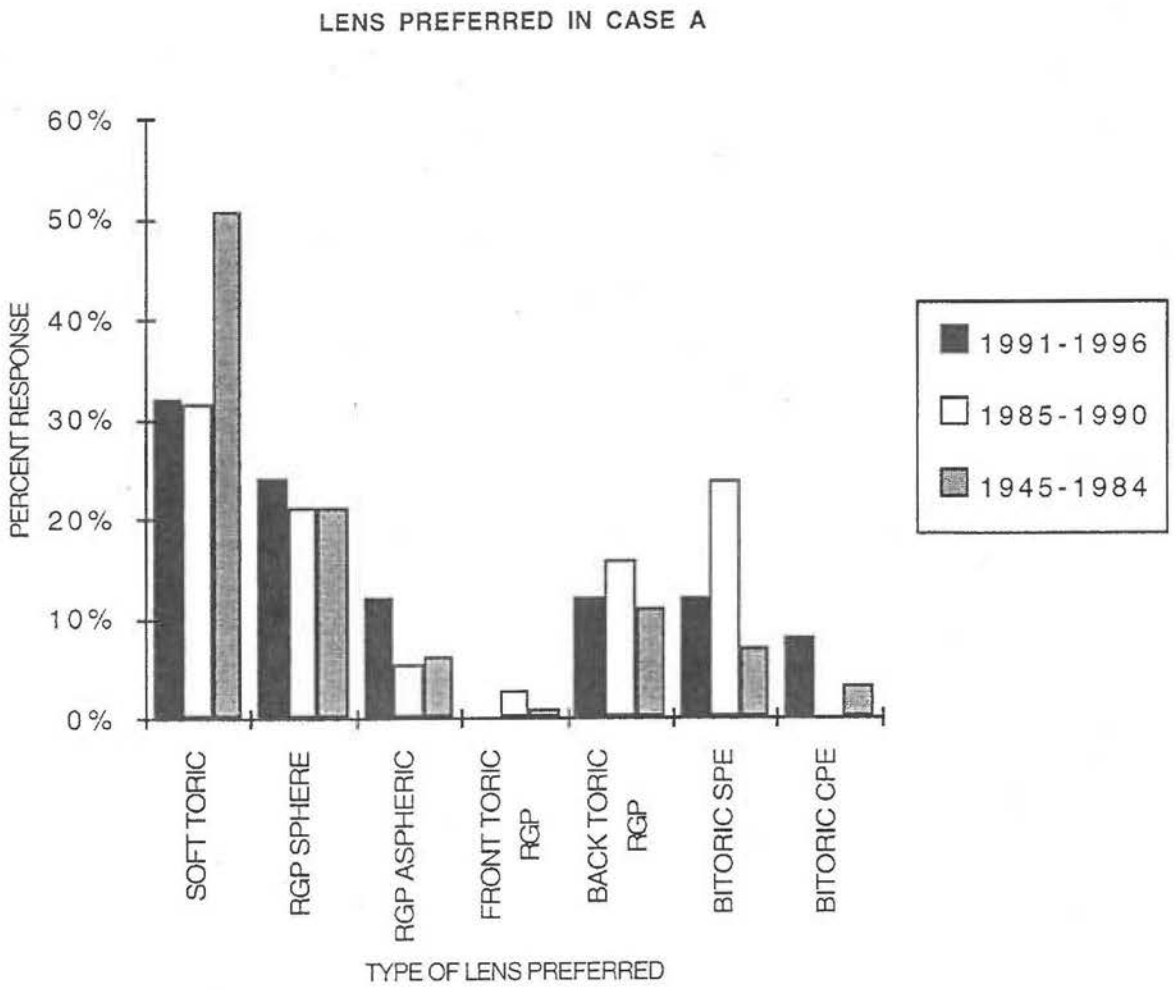
LENS PREFERRED IN CASE A
60%
50%
40%
30%
20%
10%
0%
PERCENT RESPONSE
1991-1996
1985-1990
1945-1984
SOFT TORIC
RGP SPHERE
RGP ASPHERIC
FRONT TORIC RGP
BACK TORIC RGP
BITORIC SPE
BITORIC CPE
TYPE OF LENS PREFERRED

Figure 22.

Case B is 2D ATR cylinder, none of which is corneal. Figure 23 illustrates that Soft Toric was the lens type of choice for the highest percentage of all practice modes. RGP sphere and Front Toric RGP were second for retail with an equal percentage (8.1%). The "Other" category chose Front Toric RGP as its second choice, while Solo was RGP sphere. Generally, RGP aspheric, Back Toric RGP, and Bitoric SPE were the least frequently chosen lens types.

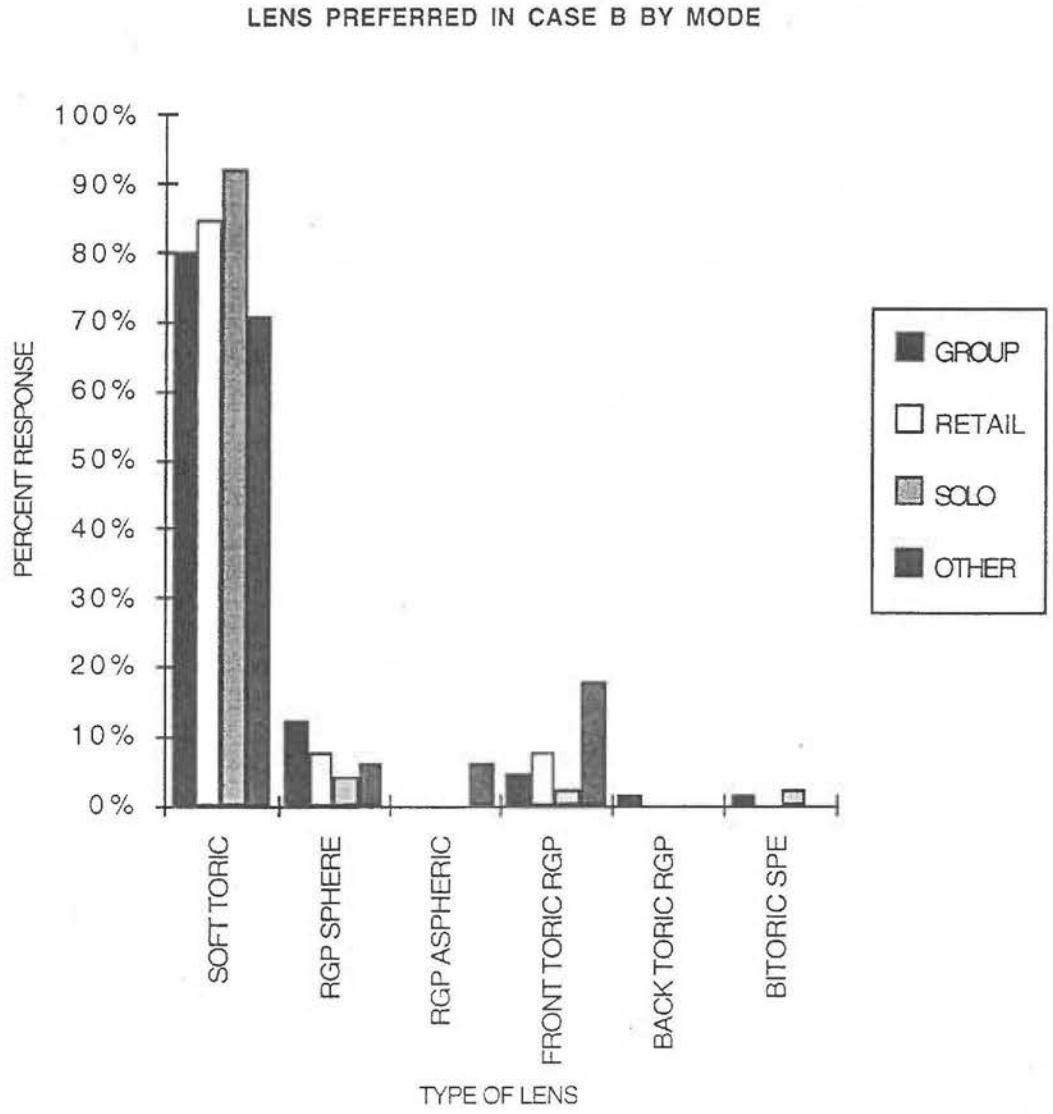

Figure 23.

Again, the same pattern as shown in Figure 23 exists for Figure 24. All categories of year began practicing chose Soft Toric lens type most frequently, and RGP sphere second, but with far fewer responses. Front Toric was the third most frequently chosen lens type and RGP aspheric, Back Toric RGP, and Bitoric SPE were the least chosen lens types. Not shown are PMMA, Soft Sphere, nor Bitoric CPE, which were not chosen by any practitioner surveyed, regardless of practice mode or year began practicing.

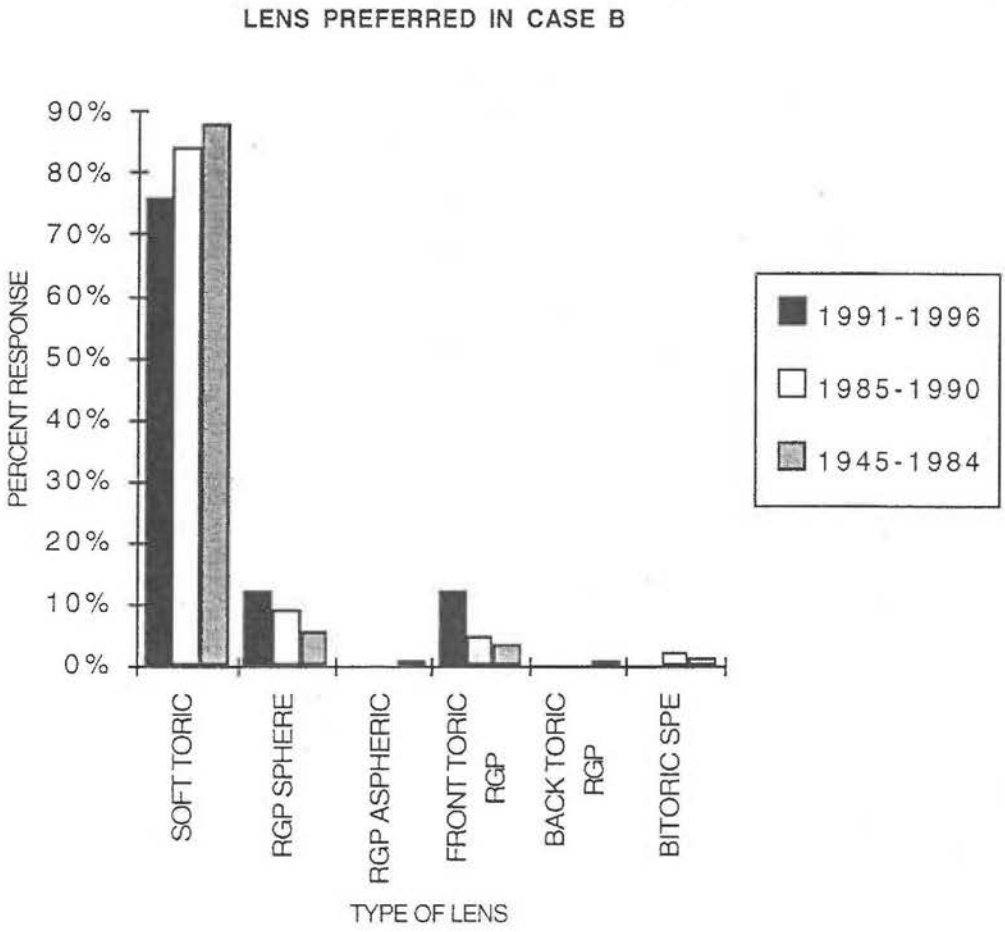

Figure 24.

Additional Information on Fitting RGP Torics Requested:

Figure 25 shows the total number of practitioners surveyed that would like more information on fitting RGP toric contact lenses. 100 replied yes, 93 replied no, and 29 did not reply.

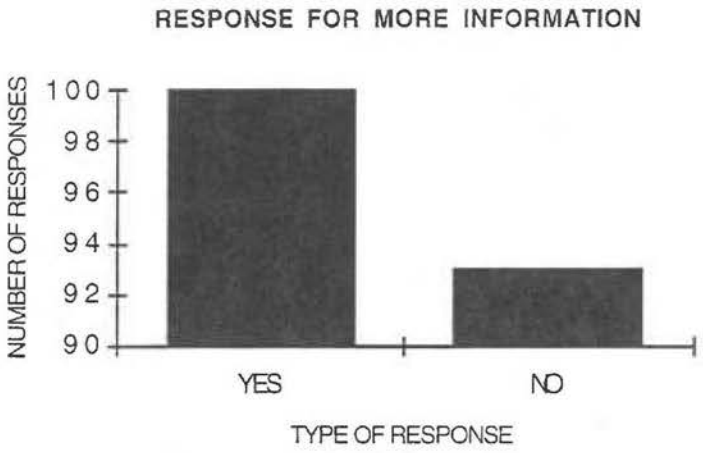

Figure 25.

Figure 26 illustrates the correlation between year began practicing and whether the practitioners surveyed would like more information on fitting RGP toric contact lenses. The 1945-1984 category was almost equally split between "yes" and "no" responses. The 1985-1990 category showed a slight separation between "yes" and "no" responses with "no" higher. A greater separation existed for the 1991-1996 category with "yes" higher.

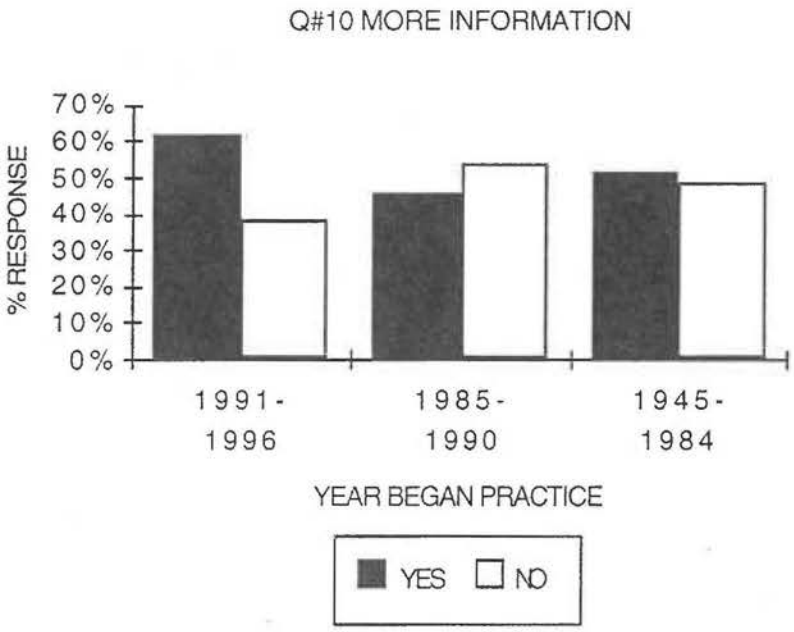

Figure 26.

DISCUSSION

When answering the question on fitting corneal cylinder with soft or rigid toric lenses, many practitioners gave more then one response. The response with the least amount of cylinder was considered in the results. Corneal cylinder of 0.75 D to 1.25 D was the same by mode and years in practice in determining when to fit soft toric lenses. Rarely did they fit below .75D cylinder with soft toric contact lenses. In fitting with the rule toric RGP's, retail had a slight preference for greater than 3.00 D while the other three modes preferred 2.50 D to 3.00 D of corneal cylinder. But when separating by years of practice, the only strong preference shown was 2.00 D to 2.50 D of cylinder for practitioners with over ten years of experience. Fitting against the rule cylinder did not show any strong preferences with each mode, only slight tendencies in different areas; less than 1.50 D for solo, 1.50 D to 2.00 D for retail, 2.00 D to 2.50 D for group, and 2.50 D to 3.00 D for other modes of practice. When separated by year, practitioners with less than ten years experience preferred to fit against the rule astigmatism at 1.50 D to 2.00 D. Practitioners with over ten years experience did not show a preference.

Many practitioners indicated that they would design their own RGP Spheres, regardless of practice mode or years practiced. With RGP torics, practice modes and practitioners with less then ten years experience preferred for the lab to design the lens. For practitioners with more than ten years experience, there was nearly an even split between those who would design their own toric lens and those who would have the lab design it.

For the source of education received in fitting contact lenses for astigmatism, the highest response was from professional schools. This was true for both mode of practice and years in practice. Although professional schooling was not as much of an influence for practitioners with over ten years experience. The other responses included on the job training, labs, and sales reps.

This survey found that for soft spheres and soft toric contact lenses, there is no clear pattern of prescribing among the various practice modes. Soft Torics were also fit 0-10 times per month with high variability among practice modes. Generally, for both soft sphere and soft torics most practitioners fit 0-5 per month. For all other contact lens types questioned, there was general agreement among the different practice modes. PMMA is almost never prescribed. RGP Sphere is prescribed 0-10 times per month. RGP Aspheric, Front Toric RGP, Back Toric RGP, Bitoric SPE, and Bitoric CPE are prescribed 0-5 times per month by most practitioners, while a fair number of practitioners never prescribe them.

For the case examples, only responses that fit into a category were counted. Replies such as sphere, toric, or RGP were not included. Some multiple responses were given, such as which lens would be a secondary choice if the first did not work. Only the primary choice was considered. Questions did not take into account practitioner bias due to chair or material costs or success in fitting different types of lenses.

In Case A (K's = 43.00/46.00@090, Rx = -1.00-3.00x180), the overall lens of choice is soft torics among retail, solo and other modes of practice. Group practitioners are evenly split between soft toric and RGP sphere as the lens of choice. As far as fitting RGP's or soft lenses, group and other modes of practice prefer to fit RGP's over soft lenses, where retail and solo modes are more evenly split. When practitioners are divided into years of experience, the overall lens of choice is still soft toric, with practitioners with more then ten years of experience split between fitting soft or RGP's. With less than ten years of experience, RGP's tend to be chosen over soft lenses.

In Case B (K'S = 43.00/43.00@090, Rx = -1.00-2.00x090), soft toric lenses are preferred overall by mode of practice or years in practice.

Approximately half of the respondents feel comfortable with or do not fit RGP toric contacts based on the replies of not wishing more information on fitting the lenses. As expected, the respondents who have been in practice for less then 5 years feel more of a need for information on fitting RGP torics than those who have been in practice longer and are more experienced or comfortable with their knowledge on fitting contact lenses.

This survey revealed several key differences among modes of practice and years practiced. For with the rule corneal astigmatism, retail practitioners required slightly higher magnitude for fitting RGP's, while for against the rule astigmatism, there was a wider range of magnitude requirements among modes. For high corneal cylinder there was some variability among modes, with most fitting soft, and some fitting RGP's. The differences in years practiced showed that those with more than ten years experience tend to utilize the lab more for designing toric RGP's. They also depend more on other sources of learning than professional school. The practitioners with less than five years experience are less comfortable with their current knowledge of fitting toric RGP's. Overall, there wasn't much variability among modes of practice, but some differences in contact lens practice based on years of experience.

This survey provides a national overview of contact lens practice in the specific area of astigmatism. Educational institutions and vision care associations can utilize the information to determine areas that can be strengthened in both professional school and continuing education. Further study is recommended for determining specific objectives of these learning modes and reasons for apprehension practitioners have in fitting toric RGP's. Industry may use this information to efficiently provide practitioners with services and products in demand. Practitioners can benefit by the possible changes in educational modes and more directly by comparison to national contact lens practices.

APPENDIX A

Cover letter sent by US mail

Cover letter sent over America Online

Questionnaire with total responses

All raw data

PACIFIC UNIVERSITY
COLLEGE OF OPTOMETRY

Dear Dr.,

We are third year optometry students working on our thesis project. We are conducting a survey on the use of contact lenses for astigmatism, which will be helpful to practitioners and educators by indicating what is currently being fit and if there is a further need or interest in providing more information on toric contact lenses.

Please take a brief moment to fill out the short survey and return it, using the enclosed stamped envelope. We are hoping to gather the results by June 1 and plan to pursue publication in the AOA Journal of Optometry. Thank you for your assistance on this project.

Sincerely,

David Slagowski

Dale Hoffmann

2043 COLLEGE WAY FOREST GROVE, OREGON 97116 TELEPHONE (503) 357-6151

Pacific University
College of Optometry
2043 College Way
Forest Grove, Oregon 97116

Dear Dr.,

We are third year optometry students working on our thesis project. We are conducting a survey on the use of contact lenses for the treatment of astigmatism, which will be helpful to practitioners and educators by indicating what is currently being fit and if there is a further need or interest in providing more information on toric contact lenses.

Please take a brief moment to fill out the short survey and send your reply to Dave Slag@AOL.com. We are hoping to gather the results by June 1 and plan to pursue publication in the AOA Journal of Optometry. Thank you for your assistance on this project.

Sincerely,

David Slagowski
Dale Hoffmann

CONTACT LENS SURVEY: THE USE OF CONTACT LENSES FOR THE TREATMENT OF ASTIGMATISM

1. Are you a/an:
   - 215 A. OD
   - 5 B. MD
   - 1 C. COT
   - 1 D. other : ( )

2. What type of practice do you have?
   - 8 A. HMO
   - 27 B. Retail Chain
   - 110 C. Solo Practice
   - 67 D. Group Practice
   - 3 E. Government/Military
   - 4 F. Educational
   - 3 G. Other :( )

3. What year did you begin practicing? :(1947-1995)

4. When did you begin fitting contact lenses? :(1950-1995)

5. In general, what amount of corneal cylinder would you consider necessary to fit soft and RGP toric contact lenses?

A. Soft toric

8	0-0.75D
170	0.75-1.25D
39	>1.25D

B. RGP toric

ATR	WTR	
42	22	<1.50
44	29	1.50-2.00D
40	41	2.00-2.50D
40	60	2.50-3.00D
15	37	>3.00D

6. When fitting RGP lenses, do you design your own or do you rely on the lab for suggested parameters?

	OWN	LAB
RGP Spheres	166	65
RGP Torics	109	125

7. How did you learn to fit contact lenses for astigmatism?

165 A. Professional School
73 B. CE Courses
51 C. Textbooks (Post-graduate reading)
61 D. Current Literature (Journals)
47 E. Other : ( )

8. Place a check mark in the appropriate column corresponding to the number of each type of contact lens you prescribe per month for the correction of astigmatism.

CL Type	Never use	0-5	5-10	10-15	15-20	>20
A. Soft Sphere	15	60	50	20	15	33
B. Soft Toric	2	93	71	24	14	3
C. PMMA	156	37	2	1	0	0
D. RGP Sphere	4	131	54	6	5	5
E. RGP Asperic	47	137	10	0	3	0
F. Front Toric RGP	71	115	2	0	0	0
G. Back Toric RGP	45	143	6	0	0	0
H. Bitoric SPE (Lensometer cyl equal to the radiuscope cyl)	79	101	2	1	1	0
I. Bitoric CPE (Lensometer cyl not equal to the raduiscope cyl)	89	83	1	0	0	0
J. Other:( )	7	0	0	0	0	0

9. Cases:

From the contacts listed in question 8 above, please fill in your preferred lens choice for the following cases.

Case A: A patient has 3D WTR cylinder with the following K's and refraction. 43.00/46.00@090 -1.00-3.00x180
Preferred CL: (Soft Toric(84), RGP Sphere(41), RGP Aspheric(16), Front Toric RGP(2), Back Toric RGP(23), Bitoric SPE(23), Bitoric CPE(6), Other Responses(17)).

Case B: A patient has 2D ATR cylinder with the following K's and refraction. 43.00/43.00@090 -1.00-2.00x090
Preferred CL: (Soft Toric(177), RGP Sphere(15), RGP Aspheric(1), Front Toric RGP(10), Back Toric RGP(1), Bitoric SPE(3), Other Responses(5)).

10. Would you like more information on fitting RGP toric contact lenses? (100 Yes, 93 No)

TITLE	PRACTICE	YEAR BEGAN PRACTICE	YEAR BEGAN FITTING CL'S	POWER TO BEGIN FITTING SOFT TORIC	POWER TO BEGIN FITTING AGAINST THE RULE RGP	POWER TO BEGIN FITTING WITH THE RULE RGP
O.D.	CONSULT	48	50	0.75	3.00	
O.D.	EDU	66	66	0.75	2.50	2.50
O.D.	EDU	73	71	0.75	2.00	2.50
O.D.	EDU	85	85	0.75	3.00	3.00
O.D.	EDU	88	86	0.75		2.00
O.D.	FILL IN	81	84	1.25	2.00	2.50
O.D.	GOV	76	82	1.25	2.00	2.00
O.D.	GOV	61	79	0.75		
O.D.	GOV	88	88	0.75	1.50	1.50
O.D.	HMO	71	71	0.75	3.00	3.00
O.D.	HMO	75	75	0.75	2.50	2.50
O.D.	HMO	75	76	0.75	1.50	1.50
O.D.	HMO	79	80	0.75	2.00	2.50
O.D.	HMO	82		1.25	2.50	2.50
O.D.	HMO	82	82	0.75	3.00	2.50
O.D.	HMO	83	83	0.75	0.00	3.00
O.D.	HMO	88	86	0.75	2.50	2.50
O.D.	OTHER	86	86	0.75	3.00	2.50
O.D.	GRP	47	50	1.25		
O.D.	GRP	53	56	0.75	0.00	2.00
O.D.	GRP	54	55	1.25	3.00	3.00
O.D.	GRP	55	55	0.75	0.00	3.00
O.D.	GRP	60	60	0.75	2.50	2.50
O.D.	GRP	62	62	0.75	3.00	0.00
O.D.	GRP	63	63	0.00		
COT	GRP	63	62	0.75	0.00	1.50
O.D.	GRP	64	64	0.75	1.50	1.50
O.D.	GRP	68	68	0.75	2.00	3.00
O.D.	GRP	66	66	1.25	2.00	2.00
O.D.	GRP	68	68	0.75	3.00	3.00
O.D.	GRP	69	69	0.75	3.00	3.00
O.D.	GRP	70	67	0.75	3.00	3.00
O.D.	GRP	70	69	1.25	3.00	3.00
O.D.	GRP	71	71	0.75	2.50	2.00
O.D.	GRP	71	71	1.25		2.00
O.D.	GRP	73	70	0.75		
O.D.	GRP	75	75	0.00	0.00	2.00
O.D.	GRP	76	78	0.75	2.00	2.00
O.D.	GRP	76	74	0.75	0.00	2.00
O.D.	GRP	79	79	0.75	1.50	2.50
O.D.	GRP	80	80	1.25	1.50	2.50
O.D.	GRP	81	79	0.75	3.00	2.50
O.D.	GRP	81	81	0.75	2.00	3.00
O.D.	GRP	82	82	0.75	2.00	2.50
O.D.	GRP	82	80	0.75	2.00	2.00
O.D.	GRP	82	82	0.75		
O.D.	GRP	82	82	0.75	2.00	2.00
O.D.	GRP	82	80		2.00	3.00
O.D.	GRP	83	83	0.75	2.50	3.00
O.D.	GRP	83	83	0.75	2.00	2.50
O.D.	GRP	83	83	1.25	2.50	2.50
O.D.	GRP	84	84	0.75	2.50	3.00
O.D.	GRP	84	84	0.75	1.50	2.00
O.D.	GRP	84	84	0.75	2.00	2.00
M.D.	GRP	84	80	1.25	1.50	1.50
O.D.	GRP	84	84	0.75	0.00	1.50
O.D.	GRP	85	85	0.75	0.00	3.00
O.D.	GRP	85	85	0.75	2.00	2.00
O.D.	GRP	86	86	1.25	0.00	0.00
O.D.	GRP	86	86	0.75	1.50	1.50
O.D.	GRP	86	84	0.75	2.00	2.50
O.D.	GRP	87	87	0.75	3.00	3.00
O.D.	GRP	87	87	0.75	1.50	2.50
M.D.	GRP	87	84	2.50		
O.D.	GRP	87	84	0.75	1.50	1.50
O.D.	GRP	89	87	0.75	2.50	3.00
O.D.	GRP	89	87	0.75	1.50	2.00
O.D.	GRP	90	89	0.75	2.50	2.50
M.D.	GRP	88	87	0.75	3.00	3.00
O.D.	GRP	90	90	0.75	2.50	2.50
O.D.	GRP	90	90	0.75	2.00	21.00
O.D.	GRP	90	90	0.75	2.00	2.50
O.D.	GRP	91	89	0.75		
O.D.	GRP	92	92	0.75	1.50	1.50
O.D.	GRP	92	92	0.75	3.00	2.00
O.D.	GRP	93	90	0.75	2.50	2.50
O.D.	GRP	93	93	0.00	1.50	2.00
O.D.	GRP	94	94	0.75	2.50	2.50
O.D.	GRP	94	94	0.75		
O.D.	GRP	94	92	0.75	0.00	0.00
O.D.	GRP	94	90	0.75	1.50	1.50
O.D.	GRP	94	92	0.75	2.00	2.00
O.D.	GRP	95	94	0.75	1.50	2.50
O.D.	GRP	95	95	0.75	2.50	2.50
O.D.	GRP	95	93	1.25	1.50	2.00
O.D.	RET	48	50	1.25	0.00	3.00
O.D.	RET	55	55	0.75	0.00	1.50
O.D.	RET	56	56	0.75	2.50	2.50
O.D.	RET	70	70	0.75	3.00	2.00
O.D.	RET	75	75	0.75	1.50	3.00
O.D.	RET	75	75	0.75	2.00	2.50
O.D.	RET	75	73	1.25	1.50	3.00
O.D.	RET	77	77	1.25	1.50	1.50
O.D.	RET	77	77	0.75	1.50	1.50
O.D.	RET	77	77	0.75	3.00	3.00
O.D.	RET	78	79	1.25	2.00	3.00
O.D.	RET	80	78	0.75	3.00	1.50
O.D.	RET	80	80	0.75	2.00	2.00
O.D.	RET	90	77	0.75	1.50	2.00
O.D.	RET	93	91	0.75		2.50
O.D.	RET	84	94	0.75	0.00	0.00
O.D.	RET	86	86	0.75	2.00	2.00
O.D.	RET	88	86	0.75	3.00	3.00
O.D.	RET	90	90	0.75	2.50	2.50
O.D.	RET	90	90	0.75	2.50	2.00
O.D.	RET	91	90	0.75		
O.D.	RET	91	91	0.75	3.00	3.00
O.D.	RET	92	90	0.75	2.50	2.50
O.D.	RET	92	90	0.75	1.50	1.50
O.D.	RET	93	94	0.75	2.00	3.00
O.D.	RET	94	92	0.75		
O.D.	RET	94	94	0.75	1.50	2.50
O.D.	SOLO	50	52	0.75	0.00	3.00
O.D.	SOLO	51	55	0.75	1.50	1.50
O.D.	SOLO	53	50	1.25		
O.D.	SOLO	53	57	0.00	0.00	
O.D.	SOLO	57	57	0.75	0.00	3.00
O.D.	SOLO	59	59	0.75	2.00	2.50
O.D.	SOLO	50	62	0.75	2.00	2.50
O.D.	SOLO	62	62	0.75		
O.D.	SOLO	63	62	1.25		
O.D.	SOLO	64	64	0.75	2.00	0.00
O.D.	SOLO	64	64	0.75		
O.D.	SOLO	66	66	0.75	1.00	
O.D.	SOLO	56	52	0.75	2.00	2.00
O.D.	SOLO	58	58	0.75	2.00	2.00

TITLE	PRACTICE	YEAR BEGAN PRACTICE	YEAR BEGAN FITTING CL'S	POWER TO BEGIN FITTING SOFT TORIC	POWER TO BEGIN FITTING AGAINST THE RULE RGP	POWER TO BEGIN FITTING WITH THE RULE RGP
O. D.	SOLO	66	66	0.75		
O. D.	SOLO	67	67	1.25		
O. D.	SOLO	69	69	1.25	3.00	3.00
O. D.	SOLO	69	69	0.75	2.00	2.00
O. D.	SOLO	70	70	1.25	2.00	2.50
O. D.	SOLO	70	70	0.75	3.00	3.00
M. D.	SOLO	70	80	1.25		2.50
O. D.	SOLO	71	71	0.75	0.00	2.00
O. D.	SOLO	72	72	0.75	1.50	2.00
O. D.	SOLO	72	72	1.25	1.50	2.50
O. D.	SOLO	72	72	0.75	0.00	1.50
O. D.	SOLO	73	73	0.75	0.00	2.50
O. D.	SOLO	73	74	0.75		
O. D.	SOLO	73	73	1.25	2.50	2.00
O. D.	SOLO	74	65	0.75	1.50	2.00
O. D.	SOLO	74	74	0.00	1.50	1.50
O. D.	SOLO	74	72	1.25	1.50	1.50
O. D.	SOLO	74	74	0.75	2.50	2.50
O. D.	SOLO	74	74	1.25	2.00	3.00
O. D.	SOLO	75	75	0.75	2.00	2.50
O. D.	SOLO	75	75	0.75	1.50	2.00
O. D.	SOLO	75	75	1.25	2.00	2.00
O. D.	SOLO	76	76	0.75	1.50	1.50
O. D.	SOLO	76	76	0.75	3.00	3.00
O. D.	SOLO	76	76	0.75		2.00
O. D.	SOLO	77	77	0.75		2.00
O. D.	SOLO	77	77	1.25	2.50	3.00
O. D.	SOLO	77	77	0.75	0.00	1.50
O. D.	SOLO	78	78	0.75	2.50	3.00
O. D.	SOLO	78	78			
O. D.	SOLO	78	76	0.75		2.50
O. D.	SOLO	78	78	0.75	0.00	0.00
O. D.	SOLO	79	77	0.75		2.00
O. D.	SOLO	79	70	0.75	1.50	2.50
O. D.	SOLO	79	78	0.75	2.50	2.50
O. D.	SOLO	79	79		2.50	2.50
O. D.	SOLO	80	77	0.75	0.00	3.00
O. D.	SOLO	80	80	0.75	0.00	0.00
O. D.	SOLO	80	80	0.75	2.00	2.00
O. D.	SOLO	80	76	0.75	0.00	1.50
O. D.	SOLO	80	80	0.75	2.50	2.50
O. D.	SOLO	80	80	0.75		
O. D.	SOLO	80	80	1.25	2.50	2.50
O. D.	SOLO	80	81			
O. D.	SOLO	81	78	0.75	2.50	2.50
O. D.	SOLO	81	81	0.75	0.00	0.00
O. D.	SOLO	81	81	0.75	3.00	2.50
O. D.	SOLO	82	82	0.75	0.00	2.50
O. D.	SOLO	82	82	1.25	1.50	2.00
O. D.	SOLO	82	82	0.75	2.50	3.00
O. D.	SOLO	82	81	0.75	2.50	3.00
O. D.	SOLO	82	82	1.25	2.50	3.00
O. D.	SOLO	82	82	0.75	2.00	2.00
O. D.	SOLO	82	82	0.75	2.00	2.00
O. D.	SOLO	82	82	0.75	2.00	2.50
O. D.	SOLO	83	83	0.75	3.00	3.00
O. D.	SOLO	83	83	0.75	0.00	0.00
O. D.	SOLO	83	83	0.75	0.00	1.50
O. D.	SOLO	83	81	0.75	2.00	2.00
O. D.	SOLO	83	84	0.75	1.50	1.50
O. D.	SOLO	83	83	0.75		
O. D.	SOLO	83	83	0.75	2.50	2.50
O. D.	SOLO	84	84	ALL	2.50	3.00
O. D.	SOLO	84	84	0.75	1.50	2.50
O. D.	SOLO	84	79	0.00	0.00	0.00
O. D.	SOLO	84	83	0.75	0.00	0.00
O. D.	SOLO	84	80	0.75	2.50	2.50
O. D.	SOLO	84	84	0.75	0.00	0.00
O. D.	SOLO	84	84	0.75		
O. D.	SOLO	84	84	0.75	0.00	0.00
O. D.	SOLO	84	84	1.25	1.50	0.00
O. D.	SOLO	85	85	1.25	1.50	2.50
O. D.	SOLO	85	85	1.25	1.50	1.50
O. D.	SOLO	85	85	0.75	1.50	2.00
O. D.	SOLO	85	85	0.75	2.00	2.00
O. D.	SOLO	85	85	0.75		2.00
O. D.	SOLO	87	86	1.25	0.00	0.00
O. D.	SOLO	88	87	0.75	1.50	2.00
O. D.	SOLO	88	88	0.75	1.50	1.50
O. D.	SOLO	88	89	1.25		
O. D.	SOLO	88	88	0.75	1.50	1.50
O. D.	SOLO	88	88	0.75	2.00	2.50
M. D.	SOLO	88	88			
O. D.	SOLO	88	86	0.75		
O. D.	SOLO	88	86	0.75		
O. D.	SOLO	89	89	0.75	0.00	0.00
O. D.	SOLO	89	89	0.75	1.50	1.50
O. D.	SOLO	90	86	0.75	1.50	1.50
O. D.	SOLO	90	90	0.75	3.00	3.00
O. D.	SOLO	90	88	1.25		2.50
O. D.	SOLO	91	89	0.75		1.50
O. D.	SOLO	91	90	0.75		0.00
O. D.	SOLO	91	91	0.75	1.50	
O. D.	SOLO	92	92	0.75	0.00	0.00
O. D.	SOLO	92	90	0.75	2.50	3.00
O. D.	SOLO	93	93	0.75		

TITLE	PRACTICE	YEAR BEGAN PRACTICE	YEAR BEGAN FITTING CLS	OWN DESIGN AGP SPHERE	LAB DESIGN AGP SPHERE	OWN DESIGN AGP TORIC	LAB DESIGN AGP TORIC
O.D.	CONSULT	48	52	1		1	
O.D.	EDU	66	68	1		1	
O.D.	EDU	71	71	1		1	
O.D.	EDU	95	95				
O.D.	EDU	88	86	1		1	
O.D.	FILL IN	94	94	1		1	1
O.D.	GOV	76	92		1		1
O.D.	GOV	81	79	1			1
O.D.	GOV	89	89		1		1
O.D.	HMO	71	71		1	1	
O.D.	HMO	75	73	1			1
O.D.	HMO	75	76		1		1
O.D.	HMO	79	80	1	1	1	
O.D.	HMO	82		1		1	
O.D.	HMO	92	92	1			1
O.D.	HMO	83	89	1		1	1
O.D.	HMO	88	96	1			1
O.D.	OTHER	96	96	1		1	1
O.D.	GRP	47	50	1			1
O.D.	GRP	53	56	1		1	
O.D.	GRP	54	56	1		1	
O.D.	GRP	55	55	1		1	
O.D.	GRP	60	60	1		1	
O.D.	GRP	62	62	1		1	
O.D.	GRP	63	63	1	1	1	1
COT	GRP	63	63	1		1	
O.D.	GRP	64	64	1		1	1
O.D.	GRP	66	68	1			1
O.D.	GRP	66	66	1			1
O.D.	GRP	68	68	1		1	
O.D.	GRP	69	69	1			1
O.D.	GRP	70	67	1		1	
O.D.	GRP	71	69	1		1	
O.D.	GRP	71	71	1		1	
O.D.	GRP	71	71		1		1
O.D.	GRP	73	70	1			1
O.D.	GRP	75	75	1		1	
O.D.	GRP	76	76	1		1	
O.D.	GRP	76	74	1		1	
O.D.	GRP	79	79		1		1
O.D.	GRP	80	80	1	1		1
O.D.	GRP	91	79	1		1	
O.D.	GRP	91	81	1		1	1
O.D.	GRP	82	82	1			1
O.D.	GRP	82	80	1			1
O.D.	GRP	82	82				
O.D.	GRP	82	82		1	1	1
O.D.	GRP	82	80	1		1	
O.D.	GRP	83	83	1			1
O.D.	GRP	83	83	1	1	1	1
O.D.	GRP	83	83	1			1
O.D.	GRP	84	84	1			1
O.D.	GRP	84	84	1			1
O.D.	GRP	84	84	1		1	
M.D.	GRP	84	80		1		1
O.D.	GRP	84	84	1		1	
O.D.	GRP	85	85	1			1
O.D.	GRP	85	85	1		1	
O.D.	GRP	86	86		1		1
O.D.	GRP	86	86	1		1	1
O.D.	GRP	88	94	1		1	1
O.D.	GRP	87	87	1			1
O.D.	GRP	97	97	1		1	
M.D.	GRP	87	84	1		1	
O.D.	GRP	97	94	1		1	
O.D.	GRP	89	97		1		1
O.D.	GRP	99	87		1	1	
O.D.	GRP	89	88	1			1
M.D.	GRP	93	87		1		1
O.D.	GRP	90	90		1		1
O.D.	GRP	90	90	1		1	1
O.D.	GRP	90	90	1			1
O.D.	GRP	91	88	1	1		1
O.D.	GRP	92	92		1		
O.D.	GRP	92	92	1		1	
O.D.	GRP	88	90	1			1
O.D.	GRP	92	92	1		1	1
O.D.	GRP	94	94	1			1
O.D.	GRP	94	94		1		
O.D.	GRP	94	92	1			1
O.D.	GRP	94	90		1		1
O.D.	GRP	94	88	1		1	
O.D.	GRP	95	94	1			1
O.D.	GRP	95	95	1			1
O.D.	GRP	88	93	1		1	
O.D.	RET	48	90		1		1
O.D.	RET	56	55	1		1	
O.D.	RET	56	56	1	1	1	1
O.D.	RET	70	70	1			1
O.D.	RET	75	75	1		1	
O.D.	RET	75	75	1		1	
O.D.	RET	76	73	1		1	
O.D.	RET	77	77	1		1	
O.D.	RET	77	77		1		1
O.D.	RET	77	77	1		1	1
O.D.	RET	79	79	1			1
O.D.	RET	80	78		1		
O.D.	RET	90	90	1			1
O.D.	RET	80	77		1	1	
O.D.	RET	83	81	1		1	1
O.D.	RET	94	94		1		1
O.D.	RET	96	96		1		1
O.D.	RET	96	96	1			1
O.D.	RET	90	90	1			1
O.D.	RET	80	80	1		1	
O.D.	RET	91	90		1		1
O.D.	RET	91	91		1		1
O.D.	RET	92	90	1		1	
O.D.	RET	92	90	1		1	
O.D.	RET	93	94		1		1
O.D.	RET	94	92		1		1
O.D.	RET	94	94	1		1	
O.D.	SOLO	50	52	1		1	
O.D.	SOLO	53	55		1		1
O.D.	SOLO	53	48		1		
O.D.	SOLO	59	57	1			1
O.D.	SOLO	57	58	1		1	
O.D.	SOLO	59	59	1		1	1
O.D.	SOLO	60	60	1		1	
O.D.	SOLO	62	62	1		1	1
O.D.	SOLO	63	63	1		1	
O.D.	SOLO	64	64	1		1	
O.D.	SOLO	64	64	1			1
O.D.	SOLO	65	64	1		1	
O.D.	SOLO	68	67	1		1	
O.D.	SOLO	68	68	1			1

TITLE	PRACTICE	YEAR BEGAN PRACTICE	YEAR BEGAN FITTING CL'S	OWN DESIGN RGP SPHERE	LAB DESIGN RGP SPHERE	OWN DESIGN RGP TORIC	LAB DESIGN RGP TORIC
O. D.	SOLO	66	66	1	1	1	1
O. D.	SOLO	67	67	1			1
O. D.	SOLO	69	69	1		1	
O. D.	SOLO	69	69	1			1
O. D.	SOLO	70	70		1		1
O. D.	SOLO	70	70	1		1	
M. D.	SOLO	70	80	1			1
O. D.	SOLO	71	71	1			1
O. D.	SOLO	72	72	1		1	
O. D.	SOLO	72	72	1			1
O. D.	SOLO	72	72	1	1	1	1
O. D.	SOLO	73	73	1		1	
O. D.	SOLO	73	74		1		1
O. D.	SOLO	73	73	1			1
O. D.	SOLO	74	65	1	1	1	
O. D.	SOLO	74	74	1		1	
O. D.	SOLO	74	72	1			1
O. D.	SOLO	74	74	1		1	
O. D.	SOLO	74	74		1		1
O. D.	SOLO	75	75	1		1	
O. D.	SOLO	75	75	1		1	
O. D.	SOLO	75	75		1		1
O. D.	SOLO	76	76	1			1
O. D.	SOLO	76	76	1		1	
O. D.	SOLO	76	76		1		1
O. D.	SOLO	77	77		1		1
O. D.	SOLO	77	77		1		1
O. D.	SOLO	77	77	1		1	
O. D.	SOLO	78	78	1		1	
O. D.	SOLO	78	78		1		
O. D.	SOLO	78	76	1		1	
O. D.	SOLO	78	78	1		1	
O. D.	SOLO	79	77		1	1	
O. D.	SOLO	79	70	1		1	
O. D.	SOLO	79	78		1	1	
O. D.	SOLO	79	79	1		1	
O. D.	SOLO	80	77	1			1
O. D.	SOLO	80	80	1			1
O. D.	SOLO	80	80		1		1
O. D.	SOLO	80	76	1		1	
O. D.	SOLO	80	80	1		1	
O. D.	SOLO	80	80	1		1	
O. D.	SOLO	80	80		1		1
O. D.	SOLO	80	81	1			1
O. D.	SOLO	81	78		1	1	
O. D.	SOLO	81	81	1			
O. D.	SOLO	81	81	1			1
O. D.	SOLO	82	82	1			1
O. D.	SOLO	82	82	1		1	
O. D.	SOLO	82	82	1		1	1
O. D.	SOLO	82	81	1			1
O. D.	SOLO	82	82	1		1	
O. D.	SOLO	82	82	1		1	1
O. D.	SOLO	82	82	1		1	
O. D.	SOLO	82	82	1		1	
O. D.	SOLO	83	83	1		1	
O. D.	SOLO	83	83	1		1	1
O. D.	SOLO	83	83	1		1	
O. D.	SOLO	83	81		1		1
O. D.	SOLO	83	84		1		1
O. D.	SOLO	83	83	1			1
O. D.	SOLO	83	83		1	1	
O. D.	SOLO	84	84		1		1
O. D.	SOLO	84	84		1		1
O. D.	SOLO	84	79	1		1	
O. D.	SOLO	84	83		1		1
O. D.	SOLO	84	80	1		1	1
O. D.	SOLO	84	84		1		1
O. D.	SOLO	84	84	1			
O. D.	SOLO	84	84		1		1
O. D.	SOLO	84	84	1			1
O. D.	SOLO	85	85	1			1
O. D.	SOLO	85	85		1		1
O. D.	SOLO	85	85	1			1
O. D.	SOLO	85	85	1	1	1	1
O. D.	SOLO	85	85	1			1
O. D.	SOLO	87	86	1			1
O. D.	SOLO	88	87	1		1	
O. D.	SOLO	88	88	1			1
O. D.	SOLO	88	89	1			1
O. D.	SOLO	88	88	1		1	
O. D.	SOLO	88	88	1			1
M. D.	SOLO	88	88	1		1	1
O. D.	SOLO	88	86	1			
O. D.	SOLO	88	86	1			
O. D.	SOLO	89	89		1		1
O. D.	SOLO	89	89		1		1
O. D.	SOLO	90	86	1		1	
O. D.	SOLO	90	90	1		1	
O. D.	SOLO	90	88	1		1	
O. D.	SOLO	91	89	1		1	1
O. D.	SOLO	91	90		1		1
O. D.	SOLO	91	91	1	1		1
O. D.	SOLO	92	92	1		1	
O. D.	SOLO	92	90	1		1	
O. D.	SOLO	93	93		1		1

TITLE	PRACTICE	YEAR BEGAN PRACTICE	YEAR BEGAN FITTING CL'S	PROF SCHOOL	CONTINUING ED	TEXTS	CURRENT LIT	OTHER
O.D.	CONSULT	48	50		1		1	
O.D.	EDU	66	66	1				
O.D.	EDU	72	71	1				
O.D.	EDU	85	85	1				
O.D.	EDU	98	86	1				
O.D.	FILLIN	85	84	1	1	1	1	
O.D.	GOV	76	82	1				
O.D.	GOV	81	79	1				
O.D.	GOV	99	99					OTJ
O.D.	HMO	71	71		1	1		
O.D.	HMO	75	75	1				
O.D.	HMO	75	76		1		1	
O.D.	HMO	79	80	1				
O.D.	HMO	82		1				
O.D.	HMO	82	82	1				
O.D.	HMO	83	83	1	1	1	1	
O.D.	HMO	88	86	1				
O.D.	OTHER	86	86					
O.D.	GRP	47	48		1		1	
O.D.	GRP	53	56		1			
O.D.	GRP	54	56					OTJ
O.D.	GRP	56	55	1	1			
O.D.	GRP	60	60		1			
O.D.	GRP	62	62	1	1		1	
O.D.	GRP	63	63	1	1	1	1	
DOT	GRP	63	63					OTJ
O.D.	GRP	64	64		1		1	
O.D.	GRP	66	68		1	1		OTJ
O.D.	GRP	66	66	1				
O.D.	GRP	68	68	1	1	1	1	
O.D.	GRP	69	69	1				
O.D.	GRP	70	67	1	1	1	1	OTJ
O.D.	GRP	71	69	1				
O.D.	GRP	71	71	1				
O.D.	GRP	71	71					
O.D.	GRP	73	70					REPS
O.D.	GRP	75	75	1	1	1	1	OTJ
O.D.	GRP	76	76	1				
O.D.	GRP	76	74	1	1		1	
O.D.	GRP	79	79	1	1			
O.D.	GRP	80	80	1				
O.D.	GRP	81	79	1				
O.D.	GRP	81	81	1				
O.D.	GRP	82	82	1	1	1	1	OTJ
O.D.	GRP	82	80	1				
O.D.	GRP	82	82	1				
O.D.	GRP	82	82	1	1		1	OTJ
O.D.	GRP	83	80	1	1	1	1	
O.D.	GRP	83	83	1				
O.D.	GRP	83	83		1		1	OTJ
O.D.	GRP	84	84	1				OTJ
O.D.	GRP	84	84	1				
O.D.	GRP	84	84	1	1	1	1	OTJ
M.D.	GRP	84	90	1				
O.D.	GRP	84	84	1	1			OTJ
O.D.	GRP	85	85	1	1			
O.D.	GRP	85	85	1				
O.D.	GRP	86	86	1				
O.D.	GRP	88	88				1	
O.D.	GRP	86	84	1		1		
O.D.	GRP	87	87	1				
O.D.	GRP	87	87	1	1			
M.D.	GRP	87	84			1		
O.D.	GRP	87	84	1				
O.D.	GRP	89	87	1	1		1	
O.D.	GRP	89	87	1				
O.D.	GRP	89	89	1				
M.D.	GRP	89	87			1		
O.D.	GRP	90	90	1	1		1	
O.D.	GRP	90	90					OTJ
O.D.	GRP	90	90	1	1		1	
O.D.	GRP	91	89	1				OTJ
O.D.	GRP	92	92	1				
O.D.	GRP	92	92	1	2			
O.D.	GRP	92	90			1		
O.D.	GRP	92	92					OTJ
O.D.	GRP	94	94	1				
O.D.	GRP	94	94	1	1	1	1	
O.D.	GRP	94	92	1				OTJ
O.D.	GRP	94	90	1	1	1	1	
O.D.	GRP	94	92	1				
O.D.	GRP	95	94	1			1	
O.D.	GRP	95	95	1				
O.D.	GRP	95	93	1				
O.D.	RET	88	90				1	
O.D.	RET	56	55	1	1	1	1	OTJ
O.D.	RET	56	56	1	1	1		
O.D.	RET	70	70	1	1		1	
O.D.	RET	75	75	1	1	1	1	OTJ
O.D.	RET	75	75			1	1	
O.D.	RET	75	72	1			1	OTJ
O.D.	RET	77	77	1	1	1	1	
O.D.	RET	77	77	1	1	1	1	
O.D.	RET	77	77	1		1		OTJ
O.D.	RET	79	78	1	1	1	1	OTJ
O.D.	RET	78	78	1				
O.D.	RET	86	86	1				OTJ
O.D.	RET	88	88	1	1		1	
O.D.	RET	93	91	1	1	1	1	
O.D.	RET	94	94	1				
O.D.	RET	96	86	1				
O.D.	RET	98	86					OTJ
O.D.	RET	90	90	1				
O.D.	RET	90	90	1				
O.D.	RET	91	90	1				
O.D.	RET	91	91	1				OTJ
O.D.	RET	92	88	1				
O.D.	RET	92	90	1				
O.D.	RET	93	94	1				
O.D.	RET	94	92	1	1	1	1	
O.D.	RET	94	94	1				
O.D.	SOLO	50	52	1				
O.D.	SOLO	51	55	1	1	1	1	
O.D.	SOLO	52	50		1			
O.D.	SOLO	53	57			1		
O.D.	SOLO	57	57					OTJ
O.D.	SOLO	58	58	1				
O.D.	SOLO	60	60		1	1		
O.D.	SOLO	62	62		1			
O.D.	SOLO	63	63	1	1	1	1	
O.D.	SOLO	66	64			1		
O.D.	SOLO	64	64		1			
O.D.	SOLO	65	64	1	1	1	1	OTJ
O.D.	SOLO	68	63	1	1	1	1	OTJ
O.D.	SOLO	68	68	1	1	1	1	

TITLE	PRACTICE	YEAR BEGAN PRACTICE	YEAR BEGAN FITTING CL'S	PROF SCHOOL	CONTINUING ED	TEXTS	CURRENT LIT	OTHER
O. D.	SOLO	66	66	1	1			
O. D.	SOLO	67	67	1	1			
O. D.	SOLO	69	69			1		
O. D.	SOLO	69	69	1				
O. D.	SOLO	70	70	1	1			
O. D.	SOLO	70	70		1			
M. D.	SOLO	70	60		1			
O. D.	SOLO	71	71	1	1	1	1	OTJ
O. D.	SOLO	72	72			1	1	
O. D.	SOLO	72	72		1	1		
O. D.	SOLO	72	72		1	1	1	
O. D.	SOLO	73	73		1			
O. D.	SOLO	73	74	1				
O. D.	SOLO	73	73	1				
O. D.	SOLO	74	65	1				OTJ
O. D.	SOLO	74	74	1	1	1	1	
O. D.	SOLO	74	72	1				OTJ
O. D.	SOLO	74	74	1				
O. D.	SOLO	74	74		1	1		
O. D.	SOLO	75	75	1	1		1	
O. D.	SOLO	75	75					OTJ
O. D.	SOLO	75	75	1				
O. D.	SOLO	76	76					OTJ
O. D.	SOLO	76	76	1				
O. D.	SOLO	76	76				1	
O. D.	SOLO	77	77	1				OTJ
O. D.	SOLO	77	77					OTJ
O. D.	SOLO	77	77	1	1			
O. D.	SOLO	78	78		1		1	
O. D.	SOLO	78	78		1		1	
O. D.	SOLO	78	76	1				
O. D.	SOLO	78	78	1				
O. D.	SOLO	79	77	1				
O. D.	SOLO	79	70	1			1	
O. D.	SOLO	79	78	1				
O. D.	SOLO	79	79	1				OTJ
O. D.	SOLO	80	77	1				
O. D.	SOLO	80	80	1				
O. D.	SOLO	80	80	1				
O. D.	SOLO	80	76	1	1	1	1	
O. D.	SOLO	80	80	1				
O. D.	SOLO	80	80	1				OTJ
O. D.	SOLO	80	80			1	1	
O. D.	SOLO	80	81					OTJ
O. D.	SOLO	81	78		1		1	
O. D.	SOLO	81	81	1				
O. D.	SOLO	81	81	1				
O. D.	SOLO	82	82	1				
O. D.	SOLO	82	82	1				
O. D.	SOLO	82	82	1		1		
O. D.	SOLO	82	81	1				
O. D.	SOLO	82	82	1				
O. D.	SOLO	82	82	1	1	1	1	
O. D.	SOLO	82	82	1			1	
O. D.	SOLO	82	82					
O. D.	SOLO	83	83			1		
O. D.	SOLO	83	83	1				
O. D.	SOLO	83	83	1				
O. D.	SOLO	83	81		1	1	1	OTJ
O. D.	SOLO	83	84	1				
O. D.	SOLO	83	83					OTJ
O. D.	SOLO	83	83	1	1	1	1	
O. D.	SOLO	84	84	1				
O. D.	SOLO	84	84	1				
O. D.	SOLO	84	79	1				
O. D.	SOLO	84	83					
O. D.	SOLO	84	80	1				OTJ
O. D.	SOLO	84	84	1				
O. D.	SOLO	84	84	1				
O. D.	SOLO	84	84	1				
O. D.	SOLO	84	84	1				
O. D.	SOLO	85	85	1				OTJ
O. D.	SOLO	85	85	1				
O. D.	SOLO	85	85	1				
O. D.	SOLO	85	85	1				
O. D.	SOLO	85	85	1				
O. D.	SOLO	87	86	1				
O. D.	SOLO	88	87	1				
O. D.	SOLO	88	88	1				
O. D.	SOLO	88	89					OTJ
O. D.	SOLO	88	88	1				
O. D.	SOLO	88	88					OTJ
M. D.	SOLO	88	88		1	1	1	OTJ
O. D.	SOLO	86	86	1				
O. D.	SOLO	86	86	1				
O. D.	SOLO	89	89	1				
O. D.	SOLO	89	88	1				
O. D.	SOLO	90	88	1				
O. D.	SOLO	90	90	1				
O. D.	SOLO	90	88	1				OTJ
O. D.	SOLO	91	89	1	1			
O. D.	SOLO	91	90	1		1		
O. D.	SOLO	91	91	1			1	
O. D.	SOLO	92	92	1				
O. D.	SOLO	92	90	1				
O. D.	SOLO	93	93	1			1	LABS

TITLE	PRACTICE	YEAR BEGAN PRACTICE	YEAR BEGAN FITTING CLS	Q#9 LENS A AVE PER MONTH	Q#9 LENS B AVE PER MONTH	Q#9 LENS C AVE PER MONTH	Q#9 LENS D AVE PER MONTH	Q#9 LENS E AVE PER MONTH	Q#9 LENS F AVE PER MONTH	Q#9 LENS G AVE PER MONTH	Q#9 LENS H AVE PER MONTH	Q#9 LENS I AVE PER MONTH	Q#9 LENS OTHER AVE PER MONTH
O.D.	CONSULT	48	50			12.5	17.5	2.5					
O.D.	EDU	66	66	0	7.5	0	7.5	2.5	2.5	0	2.5	2.5	
O.D.	EDU	73	71	20	20	0	12.5	2.5	2.5	0	7.5	2.5	
O.D.	EDU	85	85	2.5	2.5	0	0	0	0	0	0	0	
O.D.	EDU	98	66	20	12.5	0	2.5	2.5	0	2.5	2.5	0	O.K.
O.D.	FILL IN	95	84	2.5	2.5	0	7.5	7.5	0	2.5	2.5	0	
O.D.	GOV	78	82	0	0	0	0	0	0	0	0	0	
O.D.	GOV	91	79	7.5	2.5	2.5	2.5	2.5	2.5	2.5	0	0	
O.D.	GOV	89	89	0	7.5	0	2.5	0	0	2.5	0	0	
O.D.	HMO	71	71		2.5			2.5					
O.D.	HMO	75	75	12.5	2.5	0	7.5	2.5	2.5	2.5	2.5	2.5	
O.D.	HMO	75	75										
O.D.	HMO	79	80	20	17.5	0	12.5	2.5	2.5	2.5	2.5	2.5	
O.D.	HMO	82		7.5	12.5		7.5	2.5	0	2.5	0		
O.D.	HMO	82	82	0	2.5	0	2.5	2.5	2.5	2.5	2.5	2.5	
O.D.	HMO	83	83	7.5	2.5		2.5	2.5	0	0	2.5	0	
O.D.	HMO	88	86	17.5	7.5	2.5	7.5	2.5	2.5	2.5	2.5	0	
O.D.	OTHER	86	86	0	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
O.D.	GRP	47	50	7.5	2.5	0	2.5				0	0	
O.D.	GRP	53	58		20		20			2.5		2.5	
O.D.	GRP	58	58	20	7.5	0	20	2.5	2.5	7.5	0	2.5	MF TOR RGP
O.D.	GRP	65	55		17.5	0	7.5	2.5	7.5	7.5			
O.D.	GRP	60	60	7.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5		
O.D.	GRP	62	62										
O.D.	GRP	63	63	2.5	12.5	2.5	7.5	2.5	2.5	2.5	2.5	2.5	
COT	GRP	63	63	2.5	7.5	2.5	2.5	7.5	2.5	0	0	0	
O.D.	GRP	64	64	2.5	2.5	0	2.5	2.5	0	0	2.5	2.5	
O.D.	GRP	68	68	17.5	12.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
O.D.	GRP	68	68	12.5	2.5	0		2.5		0	0	0	
O.D.	GRP	68	68	20	17.5	0	2.5	0	2.5	2.5	2.5	2.5	
O.D.	GRP	69	69		2.5	0	2.5	0	0				
O.D.	GRP	70	67	2.5	2.5	0	2.5	2.5	2.5	2.5	2.5	2.5	
O.D.	GRP	71	69	20		0	2.5	0	0	2.5	0	0	
O.D.	GRP	71	71	2.5	2.5	0	2.5	2.5	2.5	2.5	2.5	2.5	
O.D.	GRP	71	71	0	0	0	0	0		0	17.5	0	
O.D.	GRP	73	70	12.5	2.5	0	0	0	0	0	0	0	
O.D.	GRP	75	75		2.5		2.5						
O.D.	GRP	76	76	20	12.5	0	7.5	2.5	2.5	2.5	2.5	2.5	
O.D.	GRP	76	74	20	20	0	2.5	2.5	0	2.5			
O.D.	GRP	79	79		2.5		2.5	2.5					
O.D.	GRP	80	80	17.5	2.5	0	2.5	2.5	2.5	2.5	2.5	2.5	
O.D.	GRP	81	79	20	17.5	0	20	2.5	0	7.5	0	2.5	
O.D.	GRP	81	81	2.5	2.5	0	12.5	2.5	2.5	2.5	2.5	2.5	
O.D.	GRP	82	82	17.5	7.5	2.5	7.5	2.5	2.5	2.5	0	0	
O.D.	GRP	82	80	0	2.5	0	2.5	2.5	2.5	2.5	2.5	2.5	SOFTPERM
O.D.	GRP	82	82	2.5	2.5	0	2.5	2.5	2.5	2.5			
O.D.	GRP	82	82	20	7.5	0	2.5	2.5	0	2.5	0	2.5	
O.D.	GRP	82	80	2.5	2.5	0	2.5	0	2.5	2.5	0	0	BANDAGE
O.D.	GRP	83	83	2.5	2.5	0	2.5	2.5	2.5	2.5	2.5	2.5	
O.D.	GRP	83	83	2.5	2.5	0	2.5		0	2.5	2.5	2.5	
O.D.	GRP	83	83	12.5	7.5	2.5	2.5	0	0	2.5	2.5	2.5	
O.D.	GRP	84	84	7.5	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5	
O.D.	GRP	84	84	2.5	2.5	0	2.5	2.5	2.5	2.5	2.5	2.5	
O.D.	GRP	84	84	12.5	2.5	0	2.5	2.5	2.5	2.5			
M.D.	GRP	84	80	0	0	N							
O.D.	GRP	84	84										
O.D.	GRP	85	85		2.5	0	2.5	2.5	0	0	2.5	0	
O.D.	GRP	85	85	2.5	12.5	0	7.5	2.5	0		2.5		
O.D.	GRP	86	88	7.5	2.5	0	2.5	2.5	0	2.5	0	0	
O.D.	GRP	88	88	7.5	2.5	0	2.5	2.5	0	2.5	2.5	0	
O.D.	GRP	86	84	20	17.5	0	17.5	2.5	2.5	2.5		2.5	
O.D.	GRP	87	87	12.5	12.5	0	2.5	2.5	2.5	2.5	2.5	2.5	
O.D.	GRP	87	87	2.5	7.5	0	7.5	2.5	2.5	2.5	0	0	
M.D.	GRP	87	84	20	7.5	0	20	0	0	0	0	0	
O.D.	GRP	87	84	20	17.5	0	20	2.5	2.5	2.5	12.5	7.5	
O.D.	GRP	89	87	12.5	7.5	0	2.5	2.5	2.5	2.5			
O.D.	GRP	89	87	2.5	7.5	0	2.5	2.5	2.5	2.5	2.5	2.5	
O.D.	GRP	89	89		2.5	0	2.5	0	2.5	2.5	2.5	0	
M.D.	GRP	89	87	7.5	7.5	2.5	7.5	7.5	0	2.5	0	0	
O.D.	GRP	90	90	2.5	7.5	0	2.5	2.5	2.5	2.5	0	0	
O.D.	GRP	90	90	7.5	12.5	0	12.5	7.5		2.5	2.5		
O.D.	GRP	90	90	7.5	7.5	0	2.5	0	0	2.5	2.5	2.5	
O.D.	GRP	91	89	2.5	7.5	0	2.5	2.5	2.5	2.5	2.5	0	
O.D.	GRP	92	92		7.5	2.5	7.5	0	2.5	2.5	2.5	2.5	
O.D.	GRP	92	92	2.5	2.5	0	2.5	2.5	0	0	2.5	2.5	
O.D.	GRP	92	90	12.5	7.5	0	2.5	2.5	2.5	2.5	2.5	0	
O.D.	GRP	92	92	7.5	12.5		7.5	7.5			2.5		
O.D.	GRP	94	94	20	7.5	0	7.5	2.5	2.5	2.5	2.5	2.5	
O.D.	GRP	94	94	7.5	2.5	0	2.5	2.5	0	0	0	0	
O.D.	GRP	94	92	20	17.5	0	7.5	2.5	2.5	2.5	0	0	
O.D.	GRP	94	90	2.5	2.5	0	2.5	2.5	2.5	2.5	2.5	2.5	
O.D.	GRP	94	92	17.5	7.5	2.5	7.5	2.5	0	7.5	2.5	0	POST PK
O.D.	GRP	95	94	17.5	12.5	0	2.5	2.5	2.5	2.5	0	0	
O.D.	GRP	95	95	12.5	2.5	0	2.5		0	0	0	0	
O.D.	GRP	95	93	2.5	7.5	0	7.5	0	0	0	0	0	
O.D.	RET	48	90	7.5	2.5	0	2.5	0	0	0	0	0	
O.D.	RET	56	56										
O.D.	RET	56	56	20	7.5	7.5	2.5	0	0	0	0	0	
O.D.	RET	70	70		12.5	0	7.5	0	2.5	2.5	2.5		
O.D.	RET	75	75	7.5	7.5	0	2.5	2.5	2.5	2.5	2.5	0	
O.D.	RET	75	75	2.5	2.5		2.5				2.5		
O.D.	RET	75	73	20	7.5	0	7.5	2.5	2.5	2.5	2.5	2.5	
O.D.	RET	77	77	12.5	7.5	0	2.5	2.5	0	2.5	2.5	2.5	
O.D.	RET	77	77	7.5	2.5	0	2.5	0	2.5	2.5	0	0	
O.D.	RET	77	77	20	7.5	0	7.5	2.5	2.5	2.5	2.5	2.5	SOFTPERM
O.D.	RET	79	79	20	7.5	0	2.5	2.5	2.5	2.5	2.5	2.5	
O.D.	RET	80	78	7.5	7.5	0	2.5	0	0	0	0	0	
O.D.	RET	90	90	2.5	12.5	0	7.5	0	2.5	0	2.5	0	
O.D.	RET	90	77	2.5	7.5	0	2.5	2.5	0	7.5	0	0	
O.D.	RET	83	81	17.5	2.5	0	2.5	2.5	0	2.5	2.5	2.5	
O.D.	RET	84	84	0	12.5	0	2.5	2.5	2.5	2.5	0	0	
O.D.	RET	86	86	2.5	7.5	0	2.5	2.5	2.5	2.5	2.5		
O.D.	RET	88	88	2.5	17.5	0	2.5	2.5	2.5	2.5	0	0	
O.D.	RET	90	90	20	7.5	0	7.5	7.5	2.5	2.5	2.5	2.5	
O.D.	RET	90	90	12.5	7.5	0	2.5	7.5	0	2.5	2.5	2.5	
O.D.	RET	91	90	17.5	2.5	2.5	2.5	2.5	0	0	0	0	
O.D.	RET	91	91	17.5	7.5	0	2.5	2.5	2.5	2.5	0	0	
O.D.	RET	92	90	2.5	2.5	0	2.5	0	0	0	2.5	0	
O.D.	RET	92	90	7.5	12.5			2.5		2.5			
O.D.	RET	93	94	20	7.5	0	7.5	2.5	0	2.5	2.5	2.5	
O.D.	RET	94	92	20	12.5	0	2.5	2.5	2.5	2.5	2.5	2.5	
O.D.	RET	94	94	7.5	7.5	0	2.5	2.5	2.5	2.5	2.5	0	
O.D.	SOLO	52	52	2.5	7.5	0	7.5	0	2.5	2.5	0	0	
O.D.	SOLO	51	55	7.5	2.5	0	2.5	0	0	0	0		
O.D.	SOLO	53	50										
O.D.	SOLO	53	57	2.5	2.5	2.5	2.5			2.5			
O.D.	SOLO	57	57	17.5	2.5		2.5	0	2.5	2.5	2.5	2.5	
O.D.	SOLO	59	59	7.5	7.5	0	2.5			2.5			
O.D.	SOLO	60	60		2.5		2.5			2.5	0	0	
O.D.	SOLO	62	62	7.5	2.5	2.5	7.5	2.5	0	2.5	2.5	2.5	
O.D.	SOLO	63	63	2.5	2.5	0	2.5	2.5	2.5	2.5	2.5	2.5	
O.D.	SOLO	64	64	7.5	2.5	2.5	2.5	0	0	2.5	0	0	
O.D.	SOLO	64	64										
O.D.	SOLO	66	64	0	12.5	7.5	12.5	17.5	2.5	2.5			
O.D.	SOLO	68	63	7.5	7.5	0	7.5	0	0	2.5	0	0	
O.D.	SOLO	68	68	0	7.5	7.5	7.5	7.5	2.5	7.5	2.5	0	

TITLE	PRACTICE	YEAR BEGAN PRACTICE	YEAR BEGAN FITTING GLS	Qtrly LENS A AVE PER MONTH	Qtrly LENS B AVE PER MONTH	Qtrly LENS C AVE PER MONTH	Qtrly LENS D AVE PER MONTH	Qtrly LENS E AVE PER MONTH	Qtrly LENS F AVE PER MONTH	Qtrly LENS G AVE PER MONTH	Qtrly LENS H AVE PER MONTH	Qtrly LENS I AVE PER MONTH	Qtrly LENS OTHER AVE PER MONTH
O.D.	SOLO	66	66	75	25	25	75	25	0	0	0	0	
O.D.	SOLO	67	67	25	25	0	25	25	25	25			
O.D.	SOLO	69	69	25	25	0	25	0	25	25	0	0	
O.D.	SOLO	69	69	75	25	0	25	25	0	25	0	25	
O.D.	SOLO	70	70	75	25	0	25	0	25	25			
O.D.	SOLO	70	70		75	0	75	25	25	25	25	25	
M.D.	SOLO	70	80	25	25	0	25	25	25	25	25		
O.D.	SOLO	71	71		25	0	25	25	0	25	0	0	
O.D.	SOLO	72	72	125	25	0	25	25	25	0	0	0	
O.D.	SOLO	72	72	25	25	25	25	25	0	25	25	25	SOFTPERM
O.D.	SOLO	72	72	125	25	0	25	75	0	0	0	0	
O.D.	SOLO	73	73	25	25	0	75	25	0	25	25	25	
O.D.	SOLO	73	74	75	175	25	25						
O.D.	SOLO	75	73	25	25	0	25	25	0	0	0	0	
O.D.	SOLO	74	95				25	25	25		75		
O.D.	SOLO	74	74	0	75	0	75	0	25	25		25	
O.D.	SOLO	74	72	25	25	25	25	25	25	0	0	0	
O.D.	SOLO	74	74	125	25	0	25	25	25	25	25	25	
O.D.	SOLO	74	74	0	75	0	25	25	25	25	0	0	
O.D.	SOLO	75	76	125	75	0	75	25	25	25	0	25	
O.D.	SOLO	75	75	75	125	0	125	25	25	25	25	25	
O.D.	SOLO	75	75	25	75	0	25	0	0	0	0	0	
O.D.	SOLO	76	76	125	125	0	25	25	25	25	25	25	
O.D.	SOLO	76	70	25	75	25	25	25	0	0	0	0	
O.D.	SOLO	76	76	20	75	0	175	175	0	25	0	0	
O.D.	SOLO	77	77	20	175	0	75	25	25				
O.D.	SOLO	77	77	20	125	0	75	75	0	0	0	0	
O.D.	SOLO	77	77	75	25	0	25	25	25	25	25	25	
O.D.	SOLO	78	78	75	75	0	75	25		25			
O.D.	SOLO	78	78	25	25	0	25	25	0	0	0	0	
O.D.	SOLO	78	76	125	75	0	25	25	25	25	25	25	
O.D.	SOLO	78	78	75	125	0	75	25	0	25	25	25	
O.D.	SOLO	78	77	20	175	0	75	175	25	25	25	0	
O.D.	SOLO	79	70	75	75	0	25	25	25	25	25	25	0
O.D.	SOLO	79	78	25	25	0		25			25		
O.D.	SOLO	79	79										
O.D.	SOLO	80	77	20	125	25	75	25	25	25	0	25	
O.D.	SOLO	80	80	25	75	0	25	25	25	75	25	25	
O.D.	SOLO	80	80	125	25	25	25	0	25	25	0	0	
O.D.	SOLO	80	76	25	75	0	25	25	25	25	0		
O.D.	SOLO	80	80	25	125	0	175	0	0	25	25	25	
O.D.	SOLO	80	80	75	75	0	25	25	25	25	25	25	
O.D.	SOLO	80	80	0	25	0	25	0	0	25	0	0	0
O.D.	SOLO	80	81	25	25	0	75	0	25	25	0	0	
O.D.	SOLO	81	78	25	75	0	75	25	25	25	0	25	
O.D.	SOLO	81	81		25	0	25	25	25	25	0	0	
O.D.	SOLO	81	81	25	75	0	25	25	25	25	0	0	
O.D.	SOLO	82	82	25	25	0	25	25	0	0	0	25	
O.D.	SOLO	82	82	25	25	0	25	0	0	0	0	25	
O.D.	SOLO	82	82	75	25	0	25	25	25	25	0	0	
O.D.	SOLO	82	81	175	75	25	25	25	25	25	25	25	
O.D.	SOLO	82	82	75	25	0	25	25	25	25	25	25	
O.D.	SOLO	82	82	75	75	25	75	25	25	25	25	25	
O.D.	SOLO	82	81	75	125	0	25	25	0	0	25	25	
O.D.	SOLO	83	83	25	25	0	25	25	25	25	25	25	
O.D.	SOLO	83	83	20	75	25	75	25	25	25	25	0	
O.D.	SOLO	83	81	20	75	0	175	25	25	25	25	25	
O.D.	SOLO	83	84										
O.D.	SOLO	83	83	125	25	0	25	0	25	25	25	25	
O.D.	SOLO	83	83	75	125	0	75	75	0	0			
O.D.	SOLO	84	84	25	75	25	25	0	0	0	0	0	
O.D.	SOLO	84	84		75	0	25	25	25	25	25	25	
O.D.	SOLO	84	78	25	75	0	75	25		25	25	25	
O.D.	SOLO	84	83										
O.D.	SOLO	84	80										
O.D.	SOLO	84	84	175	25	25	75	25	0	0	0	0	
O.D.	SOLO	84	84	75	175	0	25	0	0	0	0	0	
O.D.	SOLO	84	84	75	25	0	25	25	25	25	25	25	
O.D.	SOLO	84	84	75	25	0	75	0	0	0	25	0	
O.D.	SOLO	85	85	75	25	0	75	0	25	25	25	0	
O.D.	SOLO	85	85	75	25	0	25	0	25	25	0	0	
O.D.	SOLO	85	85	175	75	0	75	25	75	25	25	25	
O.D.	SOLO	85	85	75	25	0	25	25		25			
O.D.	SOLO	87	86	25	75	0	75	0	25	0	25	0	
O.D.	SOLO	88	87	25	75	25	25	25	25	25	0	0	
O.D.	SOLO	88	88	125	75	0	25	25	25	25	25	0	
O.D.	SOLO	88	88	75	25	0	75	25	0	25	25	25	
O.D.	SOLO	88	88	25	75	25	75	25	25	25	25	25	
O.D.	SOLO	88	88	0	175	0	75	25	0	0	0	25	
M.D.	SOLO	88	88	75	25	0	25	25	25	75	25	25	
O.D.	SOLO	88	86	25	25	25	25	0	0	0	0	0	
O.D.	SOLO	88	88	25	25	25	75	0	0	0	0	0	
O.D.	SOLO	88	88	25	75	0	25		25	25	0	0	
O.D.	SOLO	89	89	75	25	0	25	25	25	25	25	25	
O.D.	SOLO	90	88										
O.D.	SOLO	90	90	75	25	0	25	25	25	25	25		
O.D.	SOLO	90	88	175	75	25	75	25	0	25	25		
O.D.	SOLO	91	89	25	25		25		25				
O.D.	SOLO	91	90	20	175	0	25	75	25	25	25	0	
O.D.	SOLO	91	91	75	25	0	25	25	25	25	0	0	
O.D.	SOLO	92	92	0	75	0	75	25	25	25	25	0	
O.D.	SOLO	92	90	75	25		25					25	
O.D.	SOLO	93	93	25	25	0	25	0	0	0	0	0	

TITLE	PRACTICE	YEAR BEGAN PRACTICE	YEAR BEGAN FITTING CL'S	Q#9 CASE A LENS USED	Q#9 CASE B LENS USED	MORE INFO?
O.D.	CONSULT	48	50	E	E	N
O.D.	EDU	66	66	BITORIC	B	N
O.D.	EDU	73	73	H	B	
O.D.	EDU	85	95	B	B	
O.D.	EDU	88	88	B	B	
O.D.	FILL IN	95	84	D	D	Y
O.D.	GOV	76	82	B	F	Y
O.D.	GOV	81	79	B	B	N
O.D.	GOV	59	59	B	B	Y
O.D.	HMO	71	71	E	B	N
O.D.	HMO	75	75	H	F	N
O.D.	HMO	75	76			
O.D.	HMO	79	80	B	B	Y
O.D.	HMO	82		BITORIC	B	N
O.D.	HMO	82	82	D	B	
O.D.	HMO	83	83	H	B	Y
O.D.	HMO	88	96	H	B	N
O.D.	OTHER	96	96	G	F	N
O.D.	GRP	47	50	B	D	Y
O.D.	GRP	53	56	G	B	
O.D.	GRP	54	56	G	D	
O.D.	GRP	55	55	B	B	N
O.D.	GRP	50	50	D	B	Y
O.D.	GRP	52	52	B	B	N
O.D.	GRP	53	53	D	D	Y
COT	GRP	53	53	E	B	Y
O.D.	GRP	54	64	H	B	
O.D.	GRP	56	88	D	F	N
O.D.	GRP	66	88	B	B	N
O.D.	GRP	68	68	BITORIC	B	N
O.D.	GRP	69	69	D	B	N
O.D.	GRP	70	67	F	B	Y
O.D.	GRP	71	88	D	B	N
O.D.	GRP	71	71	D	B	N
O.D.	GRP	71	71	D		N
O.D.	GRP	73	70			Y
O.D.	GRP	75	75	B	B	
O.D.	GRP	78	78	D	B	N
O.D.	GRP	78	74	B	B	
O.D.	GRP	79	79	B	B	N
O.D.	GRP	80	80	B	B	N
O.D.	GRP	81	78	G	B	N
O.D.	GRP	81	81	D	B	N
O.D.	GRP	82	82	G	B	N
O.D.	GRP	82	80	BITORIC	B	Y
O.D.	GRP	82	82	B	B	N
O.D.	GRP	82	82	B	B	Y
O.D.	GRP	82	80	B	B	Y
O.D.	GRP	83	83	G	B	N
O.D.	GRP	83	80	G	B	N
O.D.	GRP	83	83	H	B	Y
O.D.	GRP	84	84	B	B	Y
O.D.	GRP	84	84	B	B	Y
O.D.	GRP	84	84	G	G	Y
M.D.	GRP	84	90			
O.D.	GRP	84	84	B	D	Y
O.D.	GRP	85	85	H	B	
O.D.	GRP	85	85	H	B	
O.D.	GRP	86	86	B	B	N
O.D.	GRP	86	86	G	B	Y
O.D.	GRP	86	94	G	B	N
O.D.	GRP	87	87	D	B	Y
O.D.	GRP	87	87	E	B	N
M.D.	GRP	87	84	D	B	Y
O.D.	GRP	87	84	H	B	N
O.D.	GRP	89	87	E	B	
O.D.	GRP	89	87	E	B	Y
O.D.	GRP	89	89	D	B	Y
M.D.	GRP	89	87	D	D	Y
O.D.	GRP	90	90	G	B	Y
O.D.	GRP	90	90	BITORIC	B	Y
O.D.	GRP	90	90	H	H	N
O.D.	GRP	91	93	D	B	N
O.D.	GRP	92	92	G	D	N
O.D.	GRP	92	92	I	B	N
O.D.	GRP	92	90	G	B	Y
O.D.	GRP	92	92	E	B	N
O.D.	GRP	94	94	B	B	N
O.D.	GRP	94	94	D	D	Y
O.D.	GRP	94	92	B	B	Y
O.D.	GRP	94	90	BITORIC	B	Y
O.D.	GRP	94	92	H	B	Y
O.D.	GRP	95	94	I	F	Y
O.D.	GRP	95	95	G	F	N
O.D.	GRP	95	93	D	B	N
M.D.	RET	48	90	B	D	Y
O.D.	RET	56	56	BITORIC	B	N
O.D.	RET	56	56			N
O.D.	RET	70	70	G	B	Y
O.D.	RET	75	75	B	B	N
O.D.	RET	75	75	B	B	N
O.D.	RET	75	73	B	B	N
O.D.	RET	77	77	B	B	Y
O.D.	RET	77	77	B	B	Y
O.D.	RET	77	77	D	F	N
O.D.	RET	79	79	TORIC	B	N
O.D.	RET	80	78	E	B	Y
O.D.	RET	80	80	D	B	Y
O.D.	RET	80	77	G	B	Y
O.D.	RET	82	81	B	B	Y
O.D.	RET	84	84	B	B	Y
O.D.	RET	86	86	H	B	Y
O.D.	RET	88	86	B	B	Y
O.D.	RET	90	90	E	B	Y
O.D.	RET	90	90	E	B	Y
O.D.	RET	91	90	E	D	Y
O.D.	RET	91	91	B	B	N
O.D.	RET	92	90	B	B	Y
O.D.	RET	92	90	E	D	Y
O.D.	RET	93	94	D	B	Y
M.D.	RET	94	92	B	B	N
O.D.	RET	94	94	H	F	Y
O.D.	SOLO	50	52	D	B	N
O.D.	SOLO	51	55	B	B	Y
O.D.	SOLO	53	58			
O.D.	SOLO	54	57			Y
O.D.	SOLO	57	57	B	B	Y
O.D.	SOLO	58	59	D	B	Y
O.D.	SOLO	60	60	G	B	Y
O.D.	SOLO	62	62	B	B	Y
O.D.	SOLO	63	63	B	B	Y
O.D.	SOLO	64	64	B	B	Y
O.D.	SOLO	64	64			N
O.D.	SOLO	65	64	B	B	N
O.D.	SOLO	68	68	D	B	Y
O.D.	SOLO	70	70	G	B	N

TITLE	PRACTICE	YEAR BEGAN PRACTICE	YEAR BEGAN FITTING CL'S	Q#9 CASE A LENS USED	Q#9 CASE B LENS USED	MORE INFO?
O. D.	SOLO	66	66	B	B	N
O. D.	SOLO	67	67	B	B	N
O. D.	SOLO	69	69	B	B	N
O. D.	SOLO	69	69	D	B	Y
O. D.	SOLO	70	70	D	B	N
O. D.	SOLO	70	70	B	B	Y
M. D.	SOLO	70	80	G	B	Y
O. D.	SOLO	71	71	G	B	Y
O. D.	SOLO	72	72	B	B	Y
O. D.	SOLO	72	72	E	B	Y
O. D.	SOLO	72	72	B	B	
O. D.	SOLO	73	73	H	H	Y
O. D.	SOLO	73	74	B	B	Y
O. D.	SOLO	73	73	B	B	Y
O. D.	SOLO	74	65	H	B	Y
O. D.	SOLO	74	74	I	B	N
O. D.	SOLO	74	72	D	D	
O. D.	SOLO	74	74	B	B	Y
O. D.	SOLO	74	74	B	B	
O. D.	SOLO	75	75	G	B	Y
O. D.	SOLO	75	75	BITORIC	B	N
O. D.	SOLO	75	75	B	B	N
O. D.	SOLO	76	76	B	B	Y
O. D.	SOLO	76	76	B	B	N
O. D.	SOLO	76	76	B	B	Y
O. D.	SOLO	77	77	B	B	
O. D.	SOLO	77	77	D	B	N
O. D.	SOLO	77	77	B	B	N
O. D.	SOLO	78	78	D	B	N
O. D.	SOLO	78	78		B	Y
O. D.	SOLO	78	76	B	B	Y
O. D.	SOLO	78	78	B	B	N
O. D.	SOLO	79	77	B	B	Y
O. D.	SOLO	79	70	E	B	N
O. D.	SOLO	79	78	B		Y
O. D.	SOLO	79	79			N
O. D.	SOLO	80	77	D	B	
O. D.	SOLO	80	80	B	B	Y
O. D.	SOLO	80	80	BITORIC	D	N
O. D.	SOLO	80	76	B	B	Y
O. D.	SOLO	80	80	B	B	N
O. D.	SOLO	80	80	D	B	Y
O. D.	SOLO	80	80	B	B	N
O. D.	SOLO	80	81	B	B	N
O. D.	SOLO	81	78	I	B	
O. D.	SOLO	81	81	D	B	N
O. D.	SOLO	81	81	B	B	Y
O. D.	SOLO	82	82	I	B	N
O. D.	SOLO	82	82	I	B	
O. D.	SOLO	82	82	E	B	
O. D.	SOLO	82	81	B	B	Y
O. D.	SOLO	82	82	G	B	N
O. D.	SOLO	82	82	H	B	Y
O. D.	SOLO	82	82	TORIC	TORIC	Y
O. D.	SOLO	82	82	TORIC	TORIC	N
O. D.	SOLO	83	83	B	B	N
O. D.	SOLO	83	83	RGP	B	Y
O. D.	SOLO	83	83	H	B	Y
O. D.	SOLO	83	81	B	B	
O. D.	SOLO	83	84			
O. D.	SOLO	83	83	B	B	N
O. D.	SOLO	83	83	B	F	N
O. D.	SOLO	84	84	B	B	Y
O. D.	SOLO	84	84	E	B	Y
O. D.	SOLO	84	79		B	Y
O. D.	SOLO	84	83			
O. D.	SOLO	84	80	BITORIC	B	N
O. D.	SOLO	84	84	D	B	Y
O. D.	SOLO	84	84	B	B	Y
O. D.	SOLO	84	84	B	B	N
O. D.	SOLO	84	84	D	B	N
O. D.	SOLO	85	85	H	B	N
O. D.	SOLO	85	85	D	B	N
O. D.	SOLO	85	85	B	D	N
O. D.	SOLO	85	85	B	D	N
O. D.	SOLO	85	85	TORIC	B	N
O. D.	SOLO	87	86	H	B	N
O. D.	SOLO	88	87	B	B	
O. D.	SOLO	88	88	F	B	N
O. D.	SOLO	88	89	SPH	SPH	N
O. D.	SOLO	88	88	H	B	Y
O. D.	SOLO	88	88	B	B	
M. D.	SOLO	88	88	BITORIC	F	
O. D.	SOLO	88	86	B	B	N
O. D.	SOLO	88	86	B	B	N
O. D.	SOLO	89	89	D	B	N
O. D.	SOLO	89	89	TORIC	TORIC	Y
O. D.	SOLO	90	86	G	B	
O. D.	SOLO	90	90	D	B	N
O. D.	SOLO	90	88	G	B	Y
O. D.	SOLO	91	89	D	B	Y
O. D.	SOLO	91	90	B	B	Y
O. D.	SOLO	91	91	D	BITORIC	Y
O. D.	SOLO	92	92	H	B	Y
O. D.	SOLO	92	90	B	B	N
O. D.	SOLO	93	93	B	B	Y

REFERENCES:

1. Snyder, C., Wiggins, N.P., Daum, K.M.: "Visual Performance in the Correction of Astigmatism with Contact Lenses: Spherical RGP's versus Toric Hydrogels," ICLC, 1994, 21(4): 127-131.

2. Quinn, T.G.: "Choosing Between Soft Torics and RGP's," *Contact Lens Spectrum,* 1995, 10(3): 15.

3. Andrasko, G.: "Are You Going Soft on Astigmats?," *Contact Lens Spectrum*, 1995, 10(3): 19-24.

4. Bennett, E.: "Challenging RGP Patients - 6 Steps to Success," *Contact Lens Spectrum*, 1995, 10(5): 15.

5. Bennett, E.: "How You Can Improve Your Toric RGP Fitting," *Contact Lens Spectrum*, 1993, 8(11): 15.

6. Quinn, T.G.: "I Correct Astigmatism!," *Contact Lens Spectrum*, 1995, 10(1): 13.

7. Honda, J.: "A Survey of Contact Lens Popularity in Hawaii," Pacific University, College of Optometry, April, 1984.

8. Jensen, C.: "Contact Lens Trends Among Wyoming Optometrists," Pacific University, College of Optometry, February, 1984.

9. Kim, S.S.: "A Survey of Contact Lens Preference with Respect to the Number of Years in Practice in Southern California, Pacific University, College of Optometry, May, 1987.

10. America Online Inc. Directory of Members. http://www.AOL.com 1996.

11. The Blue Book of Optometrists. 44nd ed. Newton, MA: Butterworth-Heinemann. 1996.

12. Marquiss Who's Who. The American Board of Ophthalmology, Inc. Marquiss Who's Who Directory of Medical Specialists, 22nd ed., vol. 2. Chicago, Il: Marquiss Who's Who Inc. 1985; 1744-1893.

13. Maino, Dominick M., O.D., M.Ed.: "Review of Optometry's Directory of E-mail Addresses." *Review of Optometry*, 1995, 132(9), 49-64.

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