5-1-1995

Optometric survey on radial keratotomy

Jim Engstrom
Pacific University

Tom Hansted
Pacific University

Recommended Citation
https://commons.pacificu.edu/opt/1129

This Thesis is brought to you for free and open access by the Theses, Dissertations and Capstone Projects at CommonKnowledge. It has been accepted for inclusion in College of Optometry by an authorized administrator of CommonKnowledge. For more information, please contact CommonKnowledge@pacificu.edu.
Optometric survey on radial keratotomy

Abstract
Radial keratotomy is a widely discussed surgical procedure creating a variety of views and opinions in the optometric field, as well as a variety of results. A survey was conducted involving 400 randomly chosen optometrists across the nation. The optometrists were questioned on several items including demographics and personal views and opinions on RK. Although some of the information was heavily shared, other information was quite variable. Of the 162 optometrists who responded, approximately 65% of them had less than ten patients with previous RK surgery, but about 47% of the respondents reported that 10% or more of their patients inquired about the procedure. Forty-two percent of the respondents felt that the basic level of knowledge that inquiring patients had about RK was poor. Less than 10% felt it was good. Although the percentage of patients reported to have required a prescription post-RK ranged from 0 to 100% with the majority in the 90s, approximately 91% of the respondents reported that their post-RK patients were happy. The survey data was compiled and tabulated to be used as a reference for practitioners and students.

Degree Type
Thesis

Rights
Terms of use for work posted in CommonKnowledge.

This thesis is available at CommonKnowledge: https://commons.pacificu.edu/opt/1129
Copyright and terms of use

If you have downloaded this document directly from the web or from CommonKnowledge, see the “Rights” section on the previous page for the terms of use.

If you have received this document through an interlibrary loan/document delivery service, the following terms of use apply:

Copyright in this work is held by the author(s). You may download or print any portion of this document for personal use only, or for any use that is allowed by fair use (Title 17, §107 U.S.C.). Except for personal or fair use, you or your borrowing library may not reproduce, remix, republish, post, transmit, or distribute this document, or any portion thereof, without the permission of the copyright owner. [Note: If this document is licensed under a Creative Commons license (see “Rights” on the previous page) which allows broader usage rights, your use is governed by the terms of that license.]

Inquiries regarding further use of these materials should be addressed to: CommonKnowledge Rights, Pacific University Library, 2043 College Way, Forest Grove, OR 97116, (503) 352-7209. Email inquiries may be directed to: copyright@pacificu.edu

This thesis is available at CommonKnowledge: https://commons.pacificu.edu/opt/1129
OPTOMETRIC SURVEY ON
RADIAL KERATOTOMY

By

JIM ENGSTROM
TOM HANSTED

A thesis submitted to the faculty of the
College of Optometry
Pacific University
Forest Grove, Oregon
for the degree of
Doctor of Optometry
May, 1995

Advisor:

Lee Ann Remington O.D., M.S.
Assoc. Professor of Optometry
Authors:

Jim Engstrom

Tom Hansted

Advisor:

Lee Ann Remington, O.D., M.S.
Assoc. Professor of Optometry
JIM ENGSTROM

Jim was born on October 11, 1970 in Lisbon, North Dakota and raised in Grand Forks, North Dakota. He attended the University of North Dakota in his hometown of Grand Forks where he studied biology. Jim received a Bachelor of Science in Visual Science from Pacific University College of Optometry in 1994. While at Pacific, Jim served as a Student Optometric Association faculty representative and was a member of Phi Theta Upsilon Optometric Fraternity. He will graduate from Pacific in May of 1996 with a Doctor of Optometry degree. Jim is pursuing a career in the military and plans to settle in Phoenix, where his future wife, Kris Miller, is an optometrist in the United States Air Force.

TOM HANSTED

Tom was born in Jamestown, North Dakota on July 9, 1969. He spent his early school days in Jamestown then moved on to the University of North Dakota in Grand Forks, where he studied wildlife biology. Tom moved to Forest Grove, Oregon to study optometry at Pacific University College of Optometry where he received a Bachelor of Science in Visual Science in 1993. Tom was a member of Phi Theta Upsilon optometric fraternity and AMIGOS during his stay at Pacific and will graduate with his Doctor of Optometry in May of 1996. After graduation, Tom plans to return to the midwest with his wife Angie, an occupational therapist, where they both plan to pursue their respective professions.
ABSTRACT

Radial keratotomy is a widely discussed surgical procedure creating a variety of views and opinions in the optometric field, as well as a variety of results. A survey was conducted involving 400 randomly chosen optometrists across the nation. The optometrists were questioned on several items including demographics and personal views and opinions on RK. Although some of the information was heavily shared, other information was quite variable. Of the 162 optometrists who responded, approximately 65% of them had less than ten patients with previous RK surgery, but about 47% of the respondents reported that 10% or more of their patients inquired about the procedure. Forty-two percent of the respondents felt that the basic level of knowledge that inquiring patients had about RK was poor. Less than 10% felt it was good. Although the percentage of patients reported to have required a prescription post-RK ranged from 0 to 100% with the majority in the 90s, approximately 91% of the respondents reported that their post-RK patients were happy. The survey data was compiled and tabulated to be used as a reference for practitioners and students.
ACKNOWLEDGEMENTS

We would like to thank our thesis advisor, Dr. Lee Ann Remington, for all her help and patience.
INTRODUCTION

Since it was first introduced in the United States in 1978, radial keratotomy has been a widely discussed topic. Radial keratotomy, often referred to as RK, is a surgical procedure to correct nearsightedness in which numerous straight-line radial incisions are made by the surgeon into the peripheral cornea. Internal ocular pressure causes the incisional regions of the cornea to stretch, which flattens the corneal center and changes corneal refractive power. Early on, a surgical procedure like this to correct nearsightedness may have been viewed as a threat to the optometric profession. Over time, varied results may have led many optometrists to believe that RK is not the threat it was once projected to be. A possible failure to fully correct for nearsightedness requires some post-RK patients to continue to rely on spectacles for everyday tasks.

The general public often might view radial keratotomy as a "cure-all" for their visual anomalies. In the optometric world, differing opinions exist. Some opinions include waiting for two surgical procedures not yet available in the United States. Photo-refractive keratectomy, PRK, is one of the procedures. It involves the use of an excimer laser to ablate a portion of the corneal surface, changing the refractive power of the cornea. The other procedure is called laser in-situ keratomileusis, LASIK. LASIK is a surgical procedure that uses a microkeratome to cut a corneal flap, which is pulled to the side to allow an excimer laser to ablate a portion of the underlying corneal tissue. As in PRK, the ablation of corneal tissue changes the refractive power of the cornea. The flap is replaced and sutured.

The information compiled in this survey presents a random sample of views and opinions responding optometrists have about RK. Compilations and tabulations from the survey will allow practitioners and students the opportunity to compare and contrast their own personal views and opinions with others in the optometric profession.
METHODS

A brief survey was constructed and mailed to a randomly chosen population of 400 optometrists from 50 states and the District of Columbia. The survey consisted of a variety of questions. Some of the questions were designed to determine demographics of respondents, while most were concerned with optometrists' views and opinions toward radial keratotomy and its role in vision care. A copy of the survey and a compilation of the results have been included in the appendix.

RESULTS

A. General Information

A total of 162 surveys were received by mail from the 400 originally mailed out. Approximately 45% of the replying optometrists worked in a solo practice and 36% worked in a group with other optometrists. The remainder, 19%, worked in groups with ophthalmologists, chains, corporations, government hospitals, Health Maintenance Organizations and the military. Full scope/comprehensive optometry was the mode of practice reported by approximately 64% of respondents as their main practice emphasis. Most of the respondents (57%) reported seeing between 1,000 and 3,000 patients in 1994. Another 38% saw greater than 3,000 patients. Although approximately 65% of responding optometrists had less than ten patients with previous RK surgery, that number appeared to be related to the number of patient visits, as one might expect. Of those who reported seeing more than 50 RK patients, half had more than 5,000 patient visits in 1994. The percentage of patients that inquired about RK remained fairly consistent with the number of patient visits. Approximately 53% said they had 0-9% inquire, while about a third said they had 10-19% inquire. An overall 47% of the responding optometrists reported that 10% or more of their patients inquired about RK.
Only four optometrists (2.6%) said they worked in a clinic that performed RK, and of those four, three said they have referred a patient for RK. The fourth optometrist said he/she would not refer but does co-manage. Two of the optometrists who referred also co-manage, the other who referred did not co-manage.

The ratio of those who referred to those who didn't, including all responding optometrists, was about 2 to 1 - or about 65%, favoring referrals. Slightly more than half of all respondents (52%) said they would co-manage.

Approximately 96% of the respondents discuss the concept of presbyopia with patients who inquire about RK.

Among the respondents, 41%, felt that the basic level of knowledge of those inquiring about RK was poor. About 49% felt that their patients' knowledge about the procedure was fair. Less than 10% felt it was good.

B. Generalizations and Comments

Average post-RK ametropia was quite variable among responding optometrists, ranging between -2.00 and +2.00 diopters sphere with residual cylinder reported in about 15% of the cases. Cylinder power ranged from -0.25 to -2.00 diopters. The percentage of patients reported to have required a prescription due to the post-RK ametropia ranged from 0 to 100% with a majority of the optometrists choosing percentages in the range of 90-100%.

Approximately 91% of the responding optometrists estimated that their post-RK patients were satisfied with the procedure. The most common complaints regarding the outcome were glare, especially at night, and fluctuating vision. Photophobia and decreased visual acuity were reported to a lesser degree.

Optometrists who referred for RK reportedly did so because the patient either requested it, or the doctor felt the patient was a good candidate. Cosmesis and convenience were the two main reasons patients chose to have the procedure. A little less than 5% of referred patients sought the procedure to meet certain job qualifications. Approximately 11% of the referring optometrists reported that they
only referred to doctors whom they were familiar with and respected, rather than have the patient choose one themselves. Many of the optometrists who referred upon request did so only after educating the patient on what they believed to be the advantages and disadvantages of the procedure.

Refractive error and previous contact lens failure were two factors that led doctors to classify their patients as good candidates for RK. Myopia, astigmatism, and anisometropia were common refractive conditions reported. Contact lens failures reported included general contact lens material and solution intolerance, dry eyes, corneal ulcers, allergies and overall discomfort.

Among the optometrists that have referred or would refer for RK, many had personal biases toward PRK or LASIK in lieu of the present RK procedure. Some responding optometrists reported that many of their patients were swayed from having the procedure due to cost. Reportedly, patients were more apt to pursue the procedure if their insurance covered the surgery or they were financially secure.

Of the non-referring optometrists, many educated inquiring patients on the procedure but disagreed with it because they just plain didn't believe in it. Opinions varied but most optometrists felt it inappropriate to cut a healthy eye. Some optometrists reportedly felt there were genuine risks involved with the procedure that outweighed the benefits. There were some optometrists who recommended waiting for PRK or LASIK as opposed to referring for RK. Some optometrists reported a general lack of interest in the procedure from a patient standpoint. Other optometrists felt the procedure was too expensive.

**DISCUSSION AND CONCLUSION**

Even with about two-thirds (65%) of the respondents having less than ten patients who have had RK surgery, 47% of the respondents reported that 10% or more of their patients inquired about RK. From this statistic alone one can say that RK has a presence in today’s optometry. Without at least some procedural knowledge
and understanding by the optometrist it would be difficult to make a referral decision. This decision making not only depends on doctor education but personal views and opinions as well.

If the fact that radial keratotomy has a presence in today's optometry is one conclusion that the surveyors can come to, another conclusion is that a very large majority of post-RK patients are satisfied with their RK surgery even though many of them continue to require a prescription at least some of the time. Also, since very few patients who inquire about RK know much about it, patients need to be educated on the advantages and disadvantages of RK before physically pursuing the procedure.

The objective behind the questioning was not to survey optometrists' knowledge of radial keratotomy, but to present the views and opinions randomly chosen optometrists have about RK. It was the intent of the surveyors that compilations and tabulations of survey data be looked upon as a representation of these views and opinions, and that the information be used as a reference. The data is to be compared to and contrasted with other personal views and opinions in the field.
REFERENCES


September 8, 1995

Dear Optometric Practitioner:

Enclosed is a short survey about Radial Keratotomy which is being distributed to a select number of optometrists throughout the nation.

Your completion and return of this questionnaire is vital to this project. We would greatly appreciate it if you could take a few minutes to fill it out and return it in the self-addressed, stamped envelope at your earliest convenience. Your responses will be kept confidential. Your name and signature is not required on the response or the return envelope.

The information compiled in this survey will be informative and useful to both practitioners and students.

Thank you for your time.

Sincerely,

[Signatures]

Jim Engstrom
Class of 1996

Tom Hansled
Class of 1996

Lee Ann Remington O.D., M.S.
Assoc. Professor of Optometry
1. What type of practice are you involved in? solo chain corporate group w/optometrists group w/ophthalmol. other ________

2. What is your main practice emphasis? spectacle lenses contact lenses pathology pediatrics vision therapy sports vision geriatrics or low vision full scope/comprehensive.

3. How many patient visits did you have in 1994? <500 500-999 1000-1999 2000-2999 3000-3999 4000-5000 >5000

4. How many of your patients have had RK? <10 10-50 50+ 500-999 1000-1999 2000-2999 3000-3999 >5000

5. Are you in a clinic that performs RK? yes no

6. Have you ever referred a patient for RK? yes (reasons) no (reasons)

7. What percent of your patients have inquired about RK? 0-9% 10-19% 20-30% >30%

8. What do you feel is the basic level of knowledge of those that inquire about RK? poor fair good

9. Do you discuss the concept of presbyopia with the patient who inquires about RK? yes no

10. Do you co-manage RK patients? yes no

* If you answered yes to the above question please complete the following.

11. What percent of those post RK patients required an Rx? _______

12. Of those Rxs needed, what was the average power? _______

13. Are the majority of your RK patients satisfied with their RK surgery? yes no

14. If no... what is their most common complaint? glare photophobia fluctuating vision other _______

Please write any comments on the back of this sheet.

Thank you for your response!
162 total surveys received (40.5%)

1. solo 73
   chain 9
   group w/optom. 59
   group w/ophth. 9
   corporate 7
   military 1
   govern hosp. 2
   HMO 2

total 162

2. specs 46
   cls 11
   path 1
   ped. 0
   vt. 0
   sv. 0
   lv. 1
   full scope 103

   total 162

3. <500 1
   500-999 6
   1000-1999 46
   2000-2999 40
   3000-3999 24
   4000-5000 17
   >5000 17

   total 151

4. <10 106
   10-50 48
   50+ 8

   total 162

5. Y 3
   N 159
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>total 162</td>
</tr>
<tr>
<td>6.</td>
<td>Y</td>
<td>106</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>56</td>
</tr>
<tr>
<td></td>
<td>total 162</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>0-9%</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td>10-19%</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td>20-30%</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>&gt;30%</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>total 162</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>poor</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>fair</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>good</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>total 162</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Y</td>
<td>155</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>total 162</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Y</td>
<td>83</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>76</td>
</tr>
<tr>
<td></td>
<td>total 159</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>0-10%</td>
<td>10, 11-20%</td>
</tr>
<tr>
<td></td>
<td>total 77</td>
<td></td>
</tr>
</tbody>
</table>

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>12.</td>
<td>-2.00</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>-1.50</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>-1.25</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>-1.00</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>-0.75</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>-0.50</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>-0.25</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>+1.00</td>
<td>1</td>
</tr>
</tbody>
</table>


+1.25  1  
+1.50  2  
+2.00  1  

-1.00 - +1.50  1  
-1.00 - +1.00  7  
-2.00 - +2.00  1  
-0.50 - +0.50  2  

total 66  

13. Y  87  
N  9  

total 96  

14. glare  25  
fluctuating vision  20  
photophobia  8  
VA  5  

total 58