KERAVISION intacs™

PROFESSIONAL USE INFORMATION MANUAL FOR CORRECTION OF MYOPIA WITH KERAVISION® INTACS™

Physician Booklet

RESTRICTED DEVICE: U.S. Law restricts this device to sale, distribution and use by or on the order of a physician.

This document provides information concerning the intended use of KeraVision Intacs. For additional information, refer to the KeraVision Surgeon Training Manual.

Carefully read all instructions prior to use. Observe all contraindications, warnings and precautions noted in these instructions. Failure to do so may result in patient complications.

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General Warnings

- RESTRICTED DEVICE: U.S. Law restricts this device to sale, distribution and use by or on the order of a physician.

- Specific training is required before a physician is qualified to perform the KeraVision procedure for placing Intacs. Physicians must successfully complete a KeraVision-approved training program and read and understand this booklet and the KeraVision Surgeon Training Manual, prior to performing the procedure.

- Performance of the KeraVision procedure, other than as specified in this booklet and the KeraVision Surgeon Training Manual, may result in an undesirable outcome.

- All patients must be given the opportunity to read and understand the Patient Information Booklet, entitled "Facts You Need to Know About KeraVision® Intacs™ for Nearsightedness," and to have you answer all their questions to their satisfaction before giving consent for the KeraVision procedure.

I. Device Description

KeraVision Intacs corneal ring segments are an ophthalmic medical device designed for the reduction or elimination of myopia from -1.00 to -3.00 diopters. When placed in the corneal stroma, outside of the patient's central optical zone, the product reshapes the anterior surface of the cornea. Intacs are designed to be placed in the periphery of the cornea, at approximately two-thirds depth, and are surgically inserted through a small radial incision in the corneal stroma. The Intacs product has been designed to allow removal or replacement.

KeraVision Intacs are composed of two clear segments, each having an arc length of 150° (see diagram below). They are manufactured from polymethylmethacrylate (PMMA) and are available in three thicknesses, 0.25 mm, 0.30 mm and 0.35 mm. The degree of correction is determined by the Intacs thickness. The two segments are designated as clockwise (CW) and counterclockwise (CCW) to correspond to their orientation within the intrastromal tunnel. The product is designed with a fixed outer diameter and width. A single positioning hole is located in the superior end of each segment to aid in surgical manipulation.

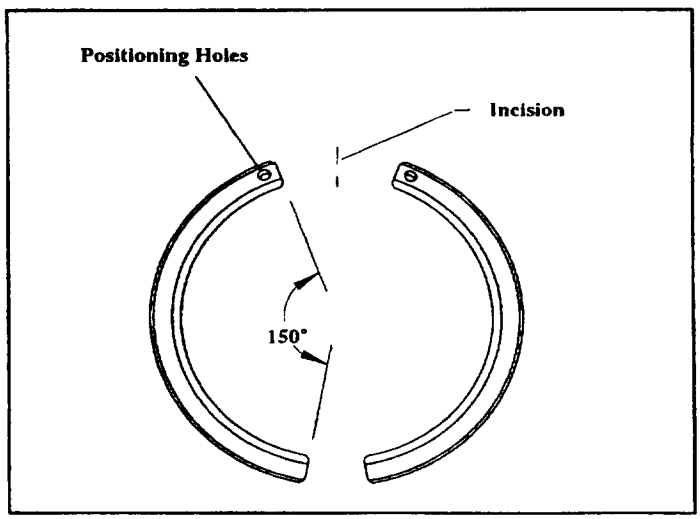


Diagram of KeraVision Intacs Corneal Ring Segments

Based on laboratory and U.S. clinical trial results, a continuous but non-overlapping recommended prescribing range has been developed for each thickness, as shown below:

Intacs Thickness	Predicted Nominal Correction	Recommended Prescribing Range
0.25 mm	-1.30 D	-1.00 to -1.625 D
0.30 mm	-2.00 D	-1.75 to -2.25 D
0.35 mm	-2.70 D	-2.375 to -3.00 D

For additional information on Intacs performance, refer to the section entitled "Performance Based on Recommended Prescribing Range."

II. Indication For Use

KeraVision Intacs are intended for the reduction or elimination of mild myopia (-1.00 to -3.00 diopters spherical equivalent at the spectacle plane) in patients:

- who are 21 years of age or older;
- with documented stability of refraction as demonstrated by a change of less than or equal to 0.50 diopter for at least 12 months prior to the preoperative examination; and
- where the astigmatic component is +1.00 diopter or less.

III. Contraindications

KeraVision Intacs are contraindicated:

- in patients with collagen vascular, autoimmune or immunodeficiency diseases;
- in pregnant or nursing women;
- in the presence of ocular conditions, such as keratoconus, recurrent corneal erosion syndrome or corneal dystrophy, that may predispose the patient to future complications; or
- in patients who are taking one or more of the following medications: isotretinoin (Accutane[1]); amiodarone (Cordarone[2]); sumatriptan (Imitrex[3]).

[1] Accutane® is a registered trademark of Roche Pharmaceuticals.
[2] Cordarone® is a registered trademark of Wyeth-Ayerst Laboratories.
[3] Imitrex® is a registered trademark of Glaxo-Wellcome, Inc.

IV. Warnings

- Use of the Vacuum Centering Guide subjects the eye to increased intraocular pressure. **Continuous application of vacuum should be limited to 3 minutes or less and to no more than 750 mBar.** If it is necessary to reapply the Vacuum Centering Guide, wait 5 minutes to allow normal vascular perfusion of the eye to occur before reestablishing suction.
- Intacs are not recommended in patients with systemic diseases likely to affect wound healing, such as insulin-dependent diabetes or severe atopic disease.
- Intacs are not recommended in patients with a history of ophthalmic *Herpes simplex* or *Herpes zoster*.
- Intacs are intended for single use only; do not reuse or resterilize.

V. Precautions

- Patients who receive the 0.35 mm Intacs may experience a reduced outcome as compared to patients who receive the 0.25 mm or 0.30 mm Intacs product. Additionally, there may be an increased removal rate for 0.35 mm patients due to dissatisfaction with their outcomes. (See section entitled "Safety and Efficacy Results.")
- Patients with myopia of -1.00 diopter are more likely to be overcorrected.
- The long-term effect of Intacs on endothelial cell density has not been established.
- A temporary decrease in central corneal sensation has been noted in some patients. No clinical consequences were demonstrated in the U.S. clinical trials.
- Some patients with large dilated pupil diameters (≥7.0 mm) are predisposed to low light visual symptoms postoperatively and should be appropriately advised.
- Under mesopic conditions, patients may experience some loss in contrast sensitivity at low spatial frequencies (1.5 cycles per degree).
- The safety and effectiveness of alternative refractive procedures following the removal of Intacs have not been established.

- The safety and effectiveness of KeraVision Intacs have **NOT** been established:
  - in patients with progressive myopia or astigmatism, nuclear sclerosis or other crystalline lens opacity, corneal abnormality, or previous corneal surgery or trauma;
  - for patients under 21 years of age;
  - for corneas that are steeper than 46 diopters or flatter than 40 diopters;
  - for corneas with a central thickness less than 480 microns or peripheral thickness less than 570 microns;
  - in patients with greater than -3.50 diopters of myopia or with astigmatism greater than +1.00 diopter; or
  - in long-term use.

VI. Adverse Events

In the U.S. Phase II and Phase III clinical trials, a total of 452 patients were enrolled. Intacs were successfully placed in 449 eyes out of 454 surgical attempts.

A. Adverse Events

Adverse events (AEs) were defined in the protocols as those observations that, if left untreated or undetected, were considered to be serious and potentially sight-threatening or could have permanent sequelae associated with them.

A total of five AEs, one in each of five patients, were reported for an overall cumulative AE incident rate of 1.1% (See Table 1). All patients recovered without clinically meaningful sequelae.

TABLE 1: Adverse Events

Description of Event	Incidence	
	n/N	%
Infectious keratitis—Both segments removed	1/454	0.2%
Shallow placement of temporal segment—One segment removed	1/454	0.2%
Loss of 2 lines of BSCVA at two consecutive exams—BSCVA regained later	1/454	0.2%
Anterior chamber perforation during initial procedure—Intacs not placed	1/454	0.2%
Anterior chamber perforation during exchange procedure—Intacs not replaced	1/454	0.2%
Total	5/454	1.1%

BSCVA = Best Spectacle-Corrected Visual Acuity

B. Ocular Complications

Ocular complications were defined in the protocols as those findings that had the potential to be clinically significant but were likely to resolve without permanent sequelae and would not result in injury to the eye.

There were four incidents of intraoperative complications where Intacs were not placed: corneal surface perforation (3) and chemosis (1). None of these intraoperative complications was related to the Intacs.

Table 2 provides a summary of the ocular complications associated with Intacs that occurred at Month 6 and Month 12. A total of 64 patients at Month 6 and 45 patients at Month 12 experienced ocular complications. The complication categories are listed in order of frequency at Month 12.

TABLE 2: Summary of Ocular Complications

	Month 6		Month 12	
Description	**n/N**	**%**	**n/N**	**%**
Reduction of Central Corneal Sensation ≥20 mm[1]	24/259	9.3%	13/237	5.5%
Induced Cylinder: > 1 D to 2 D	19/437	4.3%	15/410	3.7%
> 2 D	1/437	0.2%	0/410	0%
Neovascularization: Pannus	2/438	0.5%	6/410	1.5%
Deep	5/438	1.1%	5/410	1.2%
Loss ≥ 10 Letters or ≥ 2 Lines BSCVA[2]	7/436	1.6%	4/410	1.0%
Persistent Epithelial Defect	2/435	0.5%	1/410	0.2%
Iritis/Uveitis	2/438	0.5%	1/410	0.2%
Noninfectious Infiltrate (no loss of BSCVA)	2/438	0.5%	0/410	0%

[1]Subgroup test.
[2]Protocol defines BSCVA loss as an Adverse Event only if present at 2 or more consecutive exams.

C. Secondary Surgical Interventions

A cumulative total of 17/449 (3.8%) Intacs patients had a secondary surgical intervention performed during the twelve month reporting period. The surgical interventions included: cyst/plug removal (3/449), filament removal (2/449), foreign body/iron rust ring removal (1/449), punctal plug/punctal occlusion (5/449), wound revision (1/449) and Intacs repositioning (5/449). Only three of the surgical interventions were considered to be clinically meaningful. Two patients had a new tunnel dissected to improve the position of the Intacs and one patient had a "relaxing incision" to reduce their induced cylinder.

D. Other Ocular Findings

Deposits were observed in the intrastromal tunnel, including the incision area, at the Month 12 exam for 213/312 (68%) of Phase III patients. The magnitude was graded as "Trace" for 115/312 (36.9%), as "+1" for 87/312 (27.9%), as "+2" for 10/312 (3.2%) and as "+3" for 1/312 (0.3%). The specific origin and etiology of the deposits have not yet been conclusively established. The prevalence and level of deposits remained stable from the Month 6 to the Month 12 postoperative exams. In all cases, the deposits were confined to the intrastromal tunnel with no visual consequence.

E. Patient Reported Visual Symptoms

Among the 39 Intacs removals during the reporting period, 19/39 (49%) were due to the patients' dissatisfaction with visual symptoms. (See section entitled "Removals and Exchanges.")

The tables that follow include patient reported visual symptoms for those patients who completed their Month 12 exam. Table 3 provides a summary of the visual symptoms for patient eyes with a frequency of "Always" and a magnitude of "Severe." All patients who reported these visual symptoms had a BSCVA of 20/20 or better. No patient who reported these visual symptoms lost 10 or more letters or 2 or more lines of BSCVA.

TABLE 3: Visual Symptoms at Month 12		
	Response of "Always" & "Severe"	
Visual Symptoms	**n/N**	**%**
Difficulty with Night Vision	15/314	4.8%
Blurry Vision	9/314	2.9%
Diplopia	5/314	1.6%
Glare	4/313	1.3%
Halos	4/312	1.3%
Fluctuating Distance Vision	3/313	1.0%
Fluctuating Near Vision	1/313	0.3%
Photophobia	1/314	0.3%

Table 4 provides a summary of visual symptoms that were reported for the initial implant eye at the Month 12 exam as occurring "often" or "always" by Intacs thickness.

Table 4: Frequency of Visual Symptoms at Month 12 by Intacs Thickness*

	0.25 mm				0.30 mm				0.35 mm			
	Often		Always		Often		Always		Often		Always	
Visual Symptoms	n/N	%	n/N	%	n/N	%	n/N	%	n/N	%	n/N	%
Difficulty with Night Vision	9/109	8.3%	9/109	8.3%	7/110	6.4%	8/110	7.3%	7/110	6.4%	17/110	15.5%
Blurry Vision	5/109	4.6%	8/109	7.3%	5/110	4.5%	6/110	5.5%	7/110	6.4%	9/110	8.2%
Diplopia	2/109	1.8%	2/109	1.8%	3/110	2.7%	3/110	2.7%	3/110	2.7%	9/110	8.2%
Glare	8/109	7.3%	2/109	1.8%	9/110	8.2%	3/110	2.7%	5/110	4.5%	5/110	4.5%
Halos	6/109	5.5%	4/109	3.7%	11/110	10%	4/110	3.6%	8/109	7.3%	6/109	5.5%
Fluctuating Distance Vision	1/109	0.9%	0/109	0%	1/110	0.9%	1/110	0.9%	3/110	2.7%	5/110	4.5%
Fluctuating Near Vision	1/109	0.9%	1/109	0.9%	2/110	1.8%	0/110	0%	4/110	3.6%	4/110	3.6%
Photophobia	5/109	4.6%	5/109	4.6%	3/110	2.7%	2/110	1.8%	7/110	6.4%	1/110	0.9%

*Data collected for Phase III patients only.

The visual symptoms that were reported for the initial implant eye at the Month 12 exam with a magnitude of "moderate" or "severe" are provided in Table 5.

Table 5: Magnitude of Visual Symptoms at Month 12 by Intacs Thickness

	0.25 mm				0.30 mm				0.35 mm			
	Moderate		Severe		Moderate		Severe		Moderate		Severe	
Visual Symptoms	n/N	%	n/N	%	n/N	%	n/N	%	n/N	%	n/N	%
Difficulty with Night Vision	19/131	14.5%	3/131	2.3%	20/130	15.4%	2/130	1.5%	19/131	14.5%	12/131	9.2%
Blurry Vision*	13/106	12.3%	3/106	2.8%	9/103	8.7%	2/103	1.9%	18/105	17.1%	5/105	4.8%
Diplopia	7/131	5.3%	1/131	0.8%	6/130	4.6%	3/130	2.3%	16/131	12.2%	4/131	3.1%
Glare	19/131	14.5%	1/131	0.8%	18/129	14.0%	3/129	2.3%	17/131	13.0%	5/131	3.8%
Halos	14/131	10.7%	2/131	1.5%	20/129	15.5%	6/129	4.7%	20/130	15.4%	5/130	3.8%
Fluctuating Distance Vision	5/131	3.8%	0/131	0%	12/129	9.3%	0/129	0%	15/131	11.5%	4/131	3.1%
Fluctuating Near Vision*	6/106	5.7%	0/106	0%	5/102	4.9%	0/102	0%	8/105	7.6%	1/105	1.0%
Photophobia	19/131	14.5%	1/131	0.8%	14/130	10.8%	0/130	0%	16/131	12.2%	1/131	0.8%

*Data collected for Phase III patients only.

VII. Clinical Trial Results

A. Introduction

Two prospective, nonrandomized, unmasked, multicenter U.S. clinical trials (Phase II and Phase III) were conducted to determine the safety and efficacy of Intacs corneal ring segments. Three thicknesses (0.25, 0.30 and 0.35 mm) of Intacs were evaluated with approximately the same number of eyes in each group. The patient's nonoperative fellow eye served as a control during the first 6 months postoperatively, however the fellow eye was eligible for Intacs placement six months after the initial eye procedure. Eligibility criteria required: eyes from -1.00 D to -3.50 D of myopia spherical equivalent at the spectacle plane with +1.00 D or less of astigmatism; being at least 21 years of age; having a stable manifest refraction as documented by a 1.00 D change or less within the previous six months; and best spectacle-corrected visual acuity of 20/20 or better in both eyes.

Out of 454 surgical attempts, Intacs were successfully placed in 449 (98.9%) eyes. Complete follow-up data at the Month 12 exam were available for 410/420 (97.6%) of the eligible initial implant eyes.

The demographics and the preoperative parameters for the cohort of 449 patients are presented in Table 6 and Table 7. Patients who underwent the procedure ranged in age from 21 to 65 years, with a mean age of 39.4 years.

TABLE 6: Demographics

	n/N	%
Gender		
Female	228/449	51%
Male	221/449	49%
Race		
Caucasian	373/449	83%
Hispanic	32/449	7%
Black	22/449	5%
Asian	12/449	3%
Other	10/449	2%

TABLE 7: Preoperative Parameters		
Manifest Refraction (D)	**Mean ± SD (D)**	**Range (D)**
Spherical Equivalent	-2.24 ± 0.69	-0.75, -4.125
Sphere	-2.40 ± 0.71	-1.00, -4.50
Cylinder	+0.31 ± 0.30	0, +1.00
UCVA	**n/N**	**%**
20/125 or worse	194/448	43%
20/50 to 20/100	196/448	44%
20/25 to 20/40	55/448	12%
≤ 20/20	3/448	1%

SD = Standard Deviation
UCVA = Uncorrected Visual Acuity

B. Safety and Efficacy Results

Table 8 presents a summary of the key safety and efficacy results for all evaluated patient eyes through the Month 24 exam. The primary clinical outcome assessment was performed at the Month 12 postoperative exam.

TABLE 8: Summary of Key Safety and Efficacy Variables								
	Month 3		**Month 6**		**Month 12**		**Month 24**	
Variables	**n/N**	**%**	**n/N**	**%**	**n/N**	**%**	**n/N**	**%**
UCVA 20/16 or better	218/442	49%	212/438	48%	**216/410**	**53%**	32/51	63%
UCVA 20/20 or better	316/442	71%	303/438	69%	**303/410**	**74%**	41/51	80%
UCVA 20/25 or better	379/442	86%	374/438	85%	**356/410**	**87%**	44/51	86%
UCVA 20/40 or better	427/442	97%	421/438	96%	**396/410**	**97%**	49/51	96%
MRSE ± 0.50 D	298/442	67%	295/437	68%	**284/410**	**69%**	34/51	67%
MRSE ± 1.00 D	406/442	92%	397/437	91%	**377/410**	**92%**	47/51	92%
MRSE Stability ±0.50 D[1]	310/437	71%	363/435	83%	**356/392**	**91%**	39/47	83%
MRSE Stability ±1.00 D[1]	395/437	90%	421/435	97%	**386/392**	**98%**	46/47	98%
Loss of ≥10 Letters or ≥2 Lines BSCVA	13/442	3%	7/436	2%	**4/410**	**1%**	0/51	0%
BSCVA worse than 20/40	0/442	0%	0/436	0%	**0/410**	**0%**	0/51	0%
Increased Cylinder >2.00 D	0/442	0%	1/437	0.2%	**0/410**	**0%**	0/51	0%

[1]Stability was assessed as the change in MRSE from the previous scheduled exam.
MRSE = Manifest Refraction Spherical Equivalent

1. Stability of Refractive Effect

Stability of refractive effect is defined as the proportion of patients with a change in manifest refraction spherical equivalent (MRSE) of 1.00 D or less between two refractions taken three months apart. As highlighted in Table 9, stability was first established for the Month 3 to Month 6 interval. A statistically significant difference was seen in the stability results among the Intacs thicknesses, with the best results seen for the 0.25 mm thickness with 100% of patients achieving stability in this interval. (See Table 10). The stability results for the 0.30 and 0.35 mm thicknesses were slightly less than the 0.25 mm thickness, with 95.2% for both.

TABLE 9: Stability of Refractive Effect

Change in MRSE	Month 1 to Month 3	Month 3 to Month 6	Month 6 to Month 9	Month 9 to Month 12	Month 12 to Month 18	Month 18 to Month 24
Within ± 0.50 D	310/437 (71%)	363/435 (83%)	336/409 (82%)	356/392 (91%)	63/68 (93%)	39/47 (83%)
Within ± 1.00 D	395/437 (90%)	421/435 (97%)	398/409 (97%)	386/392 (98%)	68/68 (100%)	46/47 (98%)
Mean Difference ± SD	0.21 ± 0.64	0.04 ± 0.44	-0.00 ± 0.44	-0.01 ± 0.36	-0.03 ± 0.33	-0.05 ± 0.45
95% CI	0.15 to 0.27	0.00 to 0.09	-0.05 to 0.04	-0.04 to 0.03	-0.11 to 0.05	-0.18 to 0.08

CI = Confidence Interval

2. Performance by Thickness

A summary of the performance for key safety and efficacy variables by Intacs thickness is provided in Table 10. Overall, the 0.25 mm and 0.30 mm Intacs had better outcomes than the 0.35 mm thickness. Statistically significant differences ($p \leq 0.05$) were seen among thicknesses for the proportion of subject eyes that had a UCVA of 20/20 or better ($p < 0.001$), 20/40 or better ($p = 0.028$), a manifest refraction outcome within 0.50 D of predicted ($p = 0.004$) and within 1.00 D of predicted ($p = 0.005$), stability of manifest refraction within 1.00 D ($p = 0.011$), the proportion of eyes with an induced cylinder greater than or equal to 1.00 D ($p = 0.018$) and the rate of removals ($p = 0.004$). In all cases, the protocol-defined safety and efficacy endpoints were met for the 0.35 mm thickness.

TABLE 10: Performance by Intacs Thickness at Month 12								
	Total		0.25 mm		0.30 mm		0.35 mm	
Variables	n/N	%	n/N	%	n/N	%	n/N	%
UCVA 20/20 or better	303/410	73.9%	113/135	83.7%	107/138	77.5%	83/137	60.6%
UCVA 20/40 or better	396/410	96.6%	134/135	99.3%	134/138	97.1%	128/137	93.4%
MRSE ± 0.50 D	284/410	69.3%	94/135	69.6%	108/138	78.3%	82/137	59.9%
MRSE ± 1.00 D	377/410	92.0%	129/135	95.6%	131/138	94.9%	117/137	85.4%
MRSE Stability ±1.00 D[1]	421/435	96.8%	144/144	100%	138/145	95.2%	139/146	95.2%
Loss of ≥10 Letters or ≥2 Lines BSCVA	4/410	1.0%	2/135	1.5%	1/138	0.7%	1/137	0.7%
BSCVA worse than 20/40	0/410	0%	0/135	0%	0/138	0%	0/137	0%
Induced Cylinder ≥1.00 D	30/410	7.3%	4/135	3.0%	10/138	7.3%	16/137	11.7%
Induced Cylinder >2.00 D	0/410	0%	0/135	0%	0/138	0%	0/137	0%
Removals[2]	34/449	7.6%	5/148	3.4%	9/150	6.0%	20/151	13.3%

[1] Stability was assessed as the change in MRSE from the Month 3 to Month 6 exam.
[2] Removal data are cumulative and extend beyond the Month 12 exam.

3. Performance Based on Recommended Prescribing Range

Table 11 provides a summary of the Intacs performance at Month 12, stratified by thickness, for patients with preoperative refractive errors within the recommended prescribing range.

TABLE 11: Performance Based on Recommended Prescribing Range								
	Intacs Thickness (Preoperative CRSE)							
	0.25 mm (-1.00 to -1.625 D)		0.30 mm (-1.75 to -2.25 D)		0.35 mm (-2.375 to -3.00 D)		Total	
Variables	n/N	%	n/N	%	n/N	%	n/N	%
UCVA 20/16 or Better	71/112	63.4%	59/110	53.6%	47/95	49.5%	177/317	55.8%
UCVA 20/20 or Better	94/112	83.9%	90/110	81.8%	63/95	66.3%	247/317	77.9%
UCVA 20/40 or Better	111/112	99.1%	109/110	99.1%	91/95	95.8%	311/317	98.1%
CRSE ± 0.50 D	80/111	72.1%	85/110	77.3%	59/95	62.1%	224/316	70.9%
CRSE ± 1.00 D	104/111	93.7%	103/110	93.6%	79/95	83.2%	286/316	90.5%
MRSE ± 0.50 D	82/112	73.2%	86/110	78.2%	57/95	60.0%	225/317	71.0%
MRSE ± 1.00 D	107/112	95.5%	103/110	93.6%	81/95	85.3%	291/317	91.8%

CRSE = Cycloplegic Refraction Spherical Equivalent

4. Additional Studies

Endothelial Cell Counts

Table 12 provides the endothelial cell density percent change from the Preoperative exam. The change in endothelial cell density was statistically significant ($p < 0.001$) among Intacs thicknesses for the 10:00 peripheral region. The greatest decrease, -4.7%, was seen for the 0.35 mm Intacs; the 0.30 mm Intacs actually had a slight increase in cell density, +0.2%, for the same region.

TABLE 12: Endothelial Cell Density
Percent Change at Month 12 from Preoperative

Region		0.25 mm	0.30 mm	0.35 mm	Total
Central	n	42	36	32	110
	Mean ± SD	+0.9% ± 4.5%	+0.7% ± 5.4%	-1.0% ± 3.4%	-0.4% ± 4.6%
6:00 Peripheral	n	40	38	35	113
	Mean ± SD	-2.7% ± 5.5%	-0.9% ± 6.1%	-1.8% ± 5.4%	-1.8 ± 5.7%
10:00 Peripheral	n	44	33	34	111
	Mean ± SD	-1.4% ± 5.2%	+0.2% ± 5.1%	-4.7% ± 4.2%	-1.9% ± 5.2%

*Data collected as Phase III subgroup test.

Contrast Sensitivity

The mean change in contrast sensitivity, performed under mesopic conditions with and without a glare source, at Month 6 and Month 12 relative to preoperative levels was less than 0.1 log unit for all spatial frequencies. Without glare, the proportion of initial implant eyes with a functional decrease at Month 6 was greater than that of the non-operated fellow eyes at 1.5 cycles per degree ($p = 0.013$) and at 6 cycles per degree (not statistically significant). With glare, no statistically significant differences were found between eyes at any spatial frequency.

5. Patient Satisfaction

Responses to the postoperative patient satisfaction survey at Month 12 indicated that 90% of patients with unilateral Intacs and 95% of those with bilateral Intacs were "somewhat" or "strongly" satisfied with their KeraVision Intacs.

C. Removals and Exchanges

Intacs have been removed from 34 initial implant eyes and 5 contralateral eyes for a total of 39 patient eyes during the reporting period. Intacs can be easily removed in a brief, outpatient procedure. Reasons for Intacs removals included: one for infection, 15 for patient dissatisfaction with correction achieved (undercorrection, overcorrection or induced astigmatism), 19 for patient dissatisfaction with visual symptoms (glare, halos, difficulty with night vision, etc.) and four for other reasons (1 non-monovision correction, 2 FAA restrictions, 1 deferred exchange). There have been no clinically significant complications associated with Intacs removal procedures. The removal results demonstrate that:

- The refractions returned to preoperative levels by three months following removal, in most instances. Best spectacle-corrected visual acuity was 20/20 or better in all cases.
- The central cornea remained clear in all eyes. Slit lamp findings were limited to stromal haze and deposits within the peripheral tunnels.
- A small percentage of patients reported more frequent and/or more severe visual symptoms three months following removal than was documented prior to Intacs placement.

Table 13 provides a summary of the refractive status of the 29 patient eyes with three months postremoval data available.

TABLE 13: Refractive and Visual Acuity Change from Preoperative to Month 3 Postremoval Exam

Variables	n/N	%	95% CI
MRSE ± 0.50 D	25/29	86%	68%, 96%
MRSE ± 1.00 D	29/29	100%	88%, 100%
MRSE Stability ±1.00 D[1]	20/20	100%	83%, 100%
Loss of ≥5 Letters or ≥1 Line BSCVA	2/29	7%	1%, 23%
Loss of ≥10 Letters or ≥2 Lines BSCVA	0/29	0%	0%, 12%
Cylinder ±0.50 D	27/29	93%	77%, 99%
Cylinder ±1.00 D	29/29	100%	88%, 100%

[1] Stability was assessed as the change in MRSE from Month 1 to Month 3 postremoval. Only patients with results within the specified time window for both exams were included in the analysis.

Visual symptoms were also assessed at the Month 3 Postremoval exam. Table 14 summarizes visual symptoms reported at a frequency greater than the Preoperative exam. Table 15 provides a similar summary for the reported magnitude of visual symptoms. Table 16 provides a summary of visual symptoms reported as "severe" at the Month 3 Postremoval exam.

TABLE 14: Increase in Frequency[1] of Visual Symptoms Preoperative vs. Month 3 Postremoval

	Results		
Visual Symptom	**n/N**	**%**	**95% CI**
Blurry Vision	8/19	42%	20%, 67%
Photophobia	5/19	26%	9%, 51%
Glare	2/19	11%	1%, 33%
Difficulty with Night Vision	2/19	11%	1%, 33%
Diplopia	2/19	11%	1%, 33%
Halos	0/19	0%	0%, 18%
Fluctuating Near Vision	0/19	0%	0%, 18%
Fluctuating Distance Vision	0/19	0%	0%, 18%

[1] Data collected for Phase III patients only.

TABLE 15: Increase in Magnitude[1] of Visual Symptoms Preoperative vs. Month 3 Postremoval

	Results		
Visual Symptom	**n/N**	**%**	**95% CI**
Fluctuating Vision	1/8[2]	12%	0%, 53%
Halos	1/9	11%	0%, 48%
Difficulty with Night Vision	1/9	11%	0%, 48%
Diplopia	1/9	11%	0%, 48%
Glare	0/9	0%	0%, 34%
Photophobia	0/9	0%	0%, 34%

[1] Preoperative magnitude collected for Phase II patients only.
[2] One subject did not answer the question preoperatively.

TABLE 16: Magnitude of Visual Symptoms Proportion "Severe" at the Month 3 Postremoval Exam			
	Results		
Visual Symptom	n/N	%	95% CI
Blurry Vision[1]	1/12	8%	0%, 38%
Difficulty with Night Vision[2]	1/22	5%	0%, 23%
Diplopia[2]	1/22	5%	0%, 23%
Fluctuating Distance Vision	1/22	5%	0%, 23%
Glare	0/22	0%	0%, 15%
Halos	0/22	0%	0%, 15%
Photophobia	0/22	0%	0%, 15%
Fluctuating Near Vision[1]	0/12	0%	0%, 26%

[1]Data collected for Phase III patients only.
[2]The same patient reported both severe difficulty with night vision and diplopia.

Intacs were exchanged for 12 patients in an attempt to improve their refractive outcome. Sufficient data are not currently available to determine the efficacy of exchanging Intacs.

VIII. Patient Instructions, Registration and Reporting

Patients Instructions

- If patients wear contact lenses, they should be instructed to stop wearing them 2-3 weeks before their preoperative examination in order to obtain an accurate refraction.
- If patients wear eye makeup, they should be instructed to stop 2-3 days before the procedure to reduce the risk of infection.
- Patients should be instructed to not rub their surgery eye for the first six months after the procedure. This is important to promote proper healing of the incision.
- Patients should be instructed on the importance of using all medications as directed.
- Patients should be instructed to contact you immediately if they experience any pain, discomfort, feel that something is in their eye or experience a change in their vision after the initial postoperative recovery period (typically 7 days).
- Patients should be instructed to report any unusual symptoms that could be associated with prolonged topical steroid use, if applicable.

Registration

A Patient Registry Card and a Patient Identification Card are enclosed in the Intacs product package. Please provide both cards to the patient at the time of surgery. Each patient who receives KeraVision Intacs must be registered with KeraVision. Registration is accomplished by the patient completing the Patient Registry Card and mailing it to KeraVision. Patient registration is essential for KeraVision's long-term patient follow-up program and will assist KeraVision in responding to Adverse Event Reports and/or potentially sight-threatening complications. The Patient Identification Card is intended as an implant card to be kept in the patient's wallet.

Medical Device Reporting

Adverse events and/or potentially sight-threatening complications that may reasonably be regarded as related to Intacs and that were not previously expected in nature, severity or incidence rate should be reported to KeraVision immediately. This information is being requested from all surgeons in order to document potential long-term effects of Intacs placement.

Physicians must report these events in order to aid in identifying any emerging or potential problems with KeraVision Intacs. Use the following toll-free number when reporting adverse events or potentially sight-threatening complications involving KeraVision Intacs:

1-877-888-5372

IX. Conformance to Standards

KeraVision Intacs have been designed, manufactured and distributed in conformance with requirements of the FDA Quality System Regulations (QSR), EN ISO 9001/BS EN 46001 and the Medical Device Directives (MDD) 93/42/EEC.

X. How Supplied

KeraVision Intacs are supplied sterile and are nonpyrogenic. Intacs are intended for single use only; do not reuse or resterilize. In the event that the KeraVision Intacs packaging is damaged, do not use the product or attempt to resterilize. Contact KeraVision regarding any products that are observed to be damaged. Properly dispose of all packaging materials and recycle when possible.

XI. Symbols and Their Explanations

"Attention, See Physician Booklet"

"Model Number"

"Lot Number"

"Method of Sterilization Using Ethylene Oxide"

"Do Not Reuse"

"Use By"

XII. Directions For Use

Refer to Figure 1 for a flow chart of the KeraVision surgical procedure. The KeraVision Surgeon Training Manual contains detailed information regarding the surgical procedure, recommended equipment, medications and patient management.

Figure 1: KeraVision Surgical Procedure Flowchart

Instruments/Materials

- Field Dissector Inspection Gauge
- Povidone-Iodine 2.5% and 5% Solution
- Anesthesia Ring (for use with topical anesthesia)

- Sterile Marking Pen
- 11 mm Zone Marker
- Sinskey Hooks

- Sterile Marking Pen
- Incision and Placement Marker (IPM)

- Calibrated Diamond Knife with 15° angled blade (or rectangular blade of 1 mm width or less)

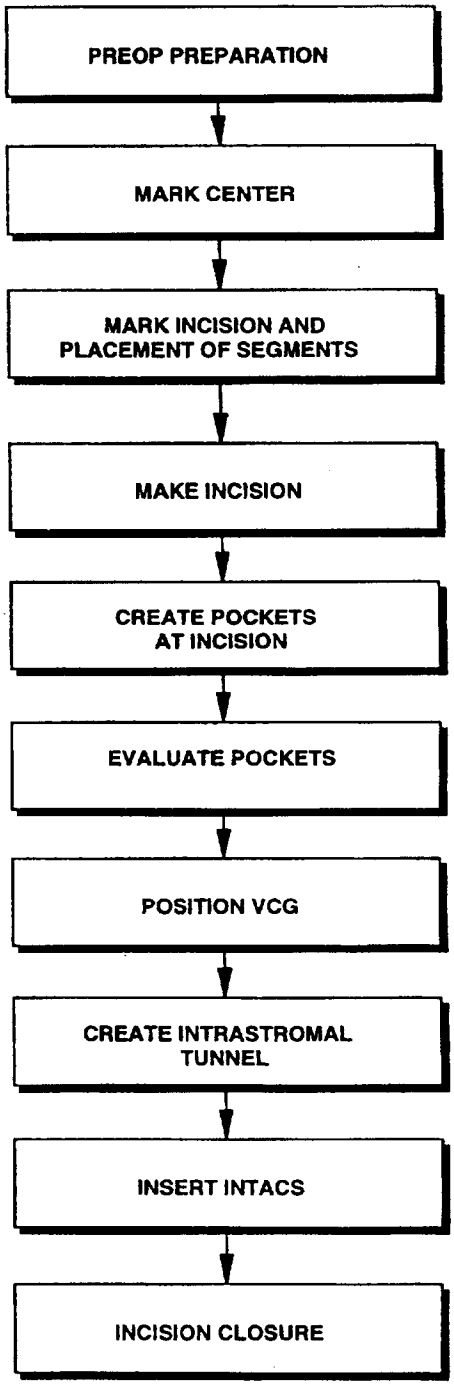
- Stromal Spreader
- Pocketing Hook (optional)
- Pocketing Lever (optional)

- Anesthesia Ring (remove prior to VCG application)
- Vacuum Centering Guide (VCG)
- Incision and Placement Marker (IPM)

- Vacuum Centering Guide (VCG)
- Glide (CCW & CW)
- Dissectors (CCW & CW)

- Intacs Forceps
- Sinskey Hooks
- KeraVision Intacs Carrier

- Ophthalmic Suture (11-0 or 10-0; 11-0 recommended)



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Key Points	Warnings/Precautions
• Iodine preparation of eye • Avoid excessive manipulation or irritation of the conjunctiva • Use lint-free drapes & talc-free gloves	• Completely isolate eyelashes • Avoid overtightening the lid speculum • Frequently irrigate the cornea with balanced saline solution during the operative procedure • Chemosis may result if local anesthesia used • Avoid contacting the Intacs & instruments with the lids, lid margins, lashes & lacrimal fluid • Visually inspect instruments prior to use • Inspect dissectors with Field Dissector Inspection Gauge • Pilocarpine to constrict pupil is not recommended
• Mark the geometric center of the cornea	
• Reference off the geometric center mark • Incision mark at 12:00 • Verify that the placement marks are at least 1 mm from the limbus	
• Cut entire length of incision mark • Remove loose epithelium from incision area • Irrigate incision area	• Set diamond knife to 68% of pachometry reading at the incision site • Verify diamond knife setting • Stay 1 mm away from the limbus
• From the base of the incision, create a corneal pocket on each side of the incision • Pockets should be at the same depth across the full width of incision within the same stromal plane and as long as the Stromal Spreader blade	• Create pockets at the full depth of the incision to avoid shallow implant depth
• Estimate pocket depth • Create deeper pockets if necessary	
• Locate VCG & IPM on center mark • Apply vacuum at 400-500 mBar • Confirm proper placement • Increase vacuum to 600-667 mBar	• Position vacuum port temporally • Limit continuous VCG time to 3 minutes or less and applied vacuum to 750 mBar
• Insert Glide into the first pocket • Rotate Dissector blade tip under Glide • Rotate Dissector to create tunnel • Create intrastromal tunnel on the second side • Release vacuum, remove VCG	• Stop dissecting if excessive resistance or "tissue wave" is encountered, consider creating a deeper pocket and tunnel • Stop the procedure in the event of a posterior chamber perforation or anterior corneal surface perforation
• Irrigate incision area • Insert one Intacs segment into each intrastromal tunnel with the positioning hole adjacent to the incision • Align the outer edge of each segment under the appropriate placement mark	• Avoid contact of Intacs segments with iodine and/or epithelial surface
• Approximate incision edges to ensure proper healing • Place one or two interrupted sutures, evenly spaced. Suture depth should be to the level of the stromal pocket • Suture knots should be buried	• Avoid epithelial ingrowth into stroma • Tension across the sutures should be evenly applied • Avoid overtightening sutures • Incision edges must be apposed at end of procedure

XIII. Return Goods Policy

Please return any damaged product to your KeraVision representative. All products returned to KeraVision must be accompanied by a Return Goods Authorization Number.
Call 1-877-888-5372 for return authorization and full policy information.

CAUTION: U.S. Law restricts this device to sale by or on the order of a physician.

The device, the surgical instruments and the method of use may be protected by one or more U.S. Patent Numbers: U.S. 5,824,086, U.S. 5,403,355, U.S. 5,843,105, U.S. 5,846,256.

WARRANTY AND LIMITATION OF LIABILITY

KeraVision warrants that the product when delivered is free from defect in materials and workmanship and conforms to the manufacturer's then-current version of its published specifications. This warranty applies for the period of time up to and including the expiration date for the product. At its option, KeraVision will repair, replace or provide a refund for any product manufactured by it and found to be defective, so long as the product is returned to KeraVision according to the return goods policy. KeraVision shall not be liable for any incidental or consequential loss, damage or expense, directly or indirectly arising from the use of, or inability to use, its product.

THE FOREGOING WARRANTY IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED, ARISING BY OPERATION OF LAW OR OTHERWISE, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

KeraVision neither assumes, nor authorizes any person to assume for it, any other additional liability or responsibility with respect to this product other than as set forth in writing herein.

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KERAVISION intacs™

FACTS YOU NEED TO KNOW ABOUT KERAVISION® INTACS™ FOR NEARSIGHTEDNESS

Patient Booklet

Please read this entire booklet. Discuss its contents with your doctor so that you have all of your questions answered to your satisfaction. Ask any questions you may have before you agree to the KeraVision procedure.

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Table of Contents

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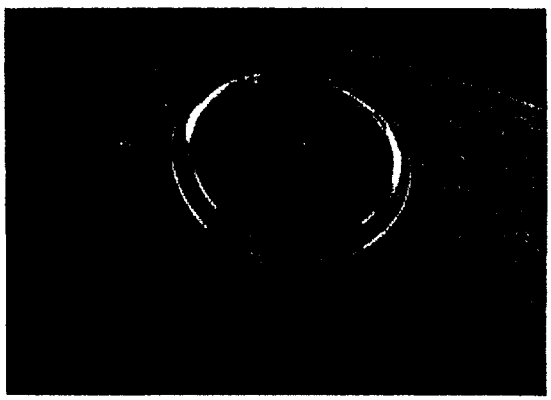
A. Introduction

Do you need to wear glasses or contact lenses to help you see objects in the distance clearly? If so, you are nearsighted, or myopic. The information in this booklet is provided to help you decide whether or not you want to correct or partly correct your nearsightedness with KeraVision Intacs.

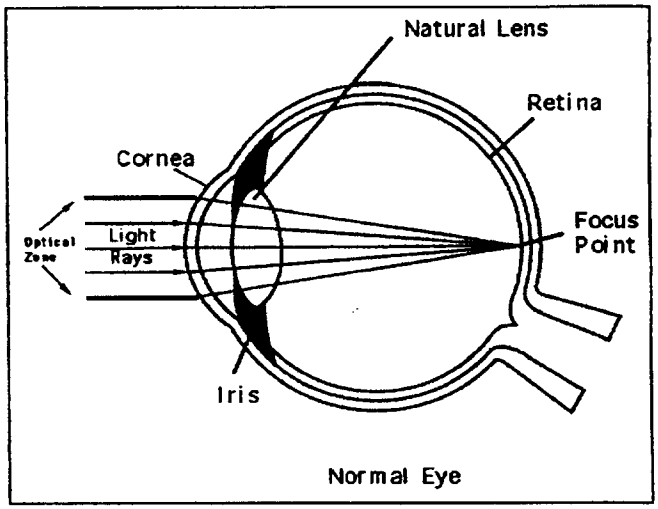
KeraVision Intacs corneal ring segments are a new way to achieve vision correction by reshaping your cornea (the clear front surface of the eye), thereby correcting its refraction (optical power). Intacs for myopia are tiny and virtually invisible arcs that are meant to remain permanently within your cornea. However, they can be removed or replaced.

Your doctor places Intacs in your cornea by a brief, outpatient surgical procedure that does not involve a laser. You may notice an improvement in your uncorrected vision (without glasses) the next day. The procedure for placing Intacs does not involve the cutting or removal of tissue from the cornea's central optical zone–the part of the cornea that is most important for your vision. Your doctor can help you decide what is best for you.



KeraVision Intacs corneal ring segments

B. How the Eye Functions

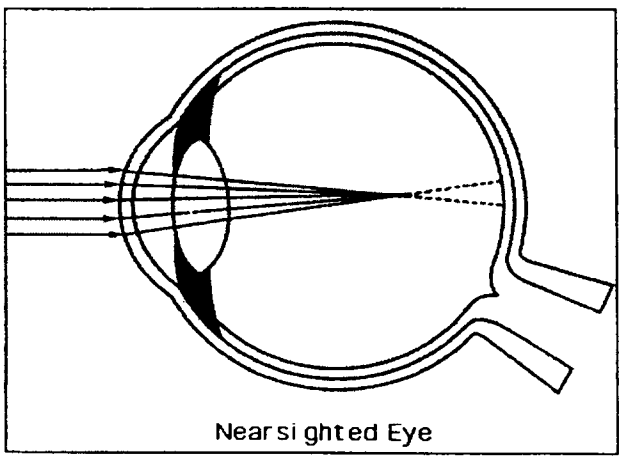


In order to understand how Intacs will help to correct your nearsightedness, it is important to understand how the eye functions.

The cornea of the eye is composed of transparent tissue and is comparable in size to a contact lens. The cornea functions as a window through which light rays travel to the retina (the back of the eye). The retina sends the "picture" of the viewed object to the brain where the object is then "seen." In the normal eye with perfect vision, the light rays enter the eye and are focused precisely on the retina. In this situation, a clear image is sent to the brain.

The cornea provides about 75 percent of the eye's focusing or refractive power. The natural lens inside the eye provides the remaining focusing power. The shape, or curvature, of the cornea determines how well you see and how "in focus" an image is when it reaches the retina. Nearly all of the light that reaches the retina must pass through the central area of the cornea or the "optical zone." Because the optical zone is so crucial for clear vision, KeraVision Intacs were designed to be placed at the outer edge of the cornea, away from the optical zone.

C. What is Nearsightedness?



In the nearsighted eye, light rays focus in front of the retina because the curvature of the cornea is greater than that of a normal eye. People with nearsightedness see nearby objects clearly, but distant objects appear blurry. During a regular eye examination, your doctor uses lenses to measure your nearsightedness in units called "diopters." Nearsightedness can be corrected by glasses, contact lenses and various types of refractive surgery.

D. What Are KeraVision Intacs?

KeraVision Intacs are two small, transparent crescents or arcs. They are composed of the same material (PMMA) that has been safely used for nearly 50 years in intraocular lenses used to treat patients with cataracts (clouding of the eye's natural lens).

Cross section of cornea showing KeraVision Intacs corneal ring segments placement.

KeraVision Intacs are designed to remain permanently in the eye, yet they can also be removed or replaced. The KeraVision procedure is typically performed in an outpatient setting using drops to numb your eye. It takes approximately 15 minutes to place KeraVision Intacs in your eye. The total procedure for one eye, including preparation time, is usually completed in less than one hour.

Intacs are surgically placed through a tiny cut that is made on the cornea. Once in place, the two arcs flatten the cornea so that light rays can properly focus on the retina. Since KeraVision Intacs are inserted in the outer edge of the cornea, the center of the cornea remains untouched.

KeraVision Intacs placed in the cornea.

E. What Are the Benefits of KeraVision Intacs?

- Intacs reduce or eliminate -1.00 to -3.00 diopters of nearsightedness. If you have this range of nearsightedness with 1.00 diopter or less of astigmatism (uneven shape of the cornea that may distort vision), you may benefit from Intacs.
- Intacs correct nearsightedness while preserving the central part of the cornea which is most important for your vision.
- In the U.S. clinical studies, the following visual results (without glasses) were achieved in patients having vision of 20/400 or better before the procedure.

	1 Day	1 Month	1 Year
20/20 or better	34%	60%	74%
20/40 or better	81%	92%	97%

- Intacs can be surgically removed or replaced.

F. What Are the Risks of KeraVision Intacs?

As with any refractive surgical procedure, there are certain risks and complications associated with the KeraVision procedure. It is important to discuss these risks with your eye doctor before you make the decision to have your surgery.

The following adverse events, complications and symptoms were reported in KeraVision Intacs clinical studies.

❒ **The First Month After Surgery (Day 1 - Month 1):**

One potentially vision-threatening adverse event occurred during this period, an infection in one patient (0.2%). The Intacs were removed and the patient's vision returned to the level that existed prior to the procedure.

The following complications occurred more than 1% of the time:

- Increase in astigmatism (6.1%)
- Temporary reduction in the best vision achieved with glasses (5.9%)
- A blood vessel present in the cornea (1.1%)

The following symptoms were reported as "severe":

- Discomfort/pain, feeling that something is in the eye and sensitivity to light (10-15%)
  - Pain resolved in most cases within 48 hours
  - Most patients resumed their normal activities within an average of 2.4 days
- Double images, fluctuating vision and burning sensation (5-9%)
- Halos, difficulty with night vision, itching and glare (<5% for each)

❒ **The First Three to Six Months After Surgery:**

One potentially vision-threatening adverse event occurred during this period, corneal thinning due to an incorrect Intacs placement in one patient (0.2%). The Intacs segment was removed and the patient continued to have good vision.

The following complications occurred more than 1% of the time:

- Increase in astigmatism (4.5%)
- Temporary reduction in the best vision achieved with glasses (1.6%)
- A blood vessel present in the cornea (1.1%)

The following symptoms were reported as "severe":

- Double images, difficulty with night vision and fluctuating vision (3-5%)
- Halos, glare, sensitivity to light and feeling that something is in the eye (<3% for each)

❒ **One Year After Surgery:**

There were no potentially vision-threatening adverse events reported one year after surgery.

The following complications were reported one year after surgery:

- Overcorrection resulting in blurred near vision without glasses (6%)
- Undercorrection resulting in blurred distance vision without glasses (4%)
- Increase in astigmatism (3.7%)
- A blood vessel present in the cornea (1.2%)
- Temporary reduction in the best vision achieved with glasses (1%)
- Persistent feeling that there is a scratch on the eye, and inflammation of the colored part of eye and surrounding tissues (<1% for each)

The following "severe" symptoms were reported as occurring "always":

- Difficulty with night vision (4.8%)
- Blurry vision, double images, glare, halos and fluctuating distance vision (1-3%)
- Fluctuating near vision and sensitivity to light (<1% for each)

❒ **Removals and Replacements**

If the results of the KeraVision procedure are not satisfactory, you may need to have another surgical procedure to remove or replace your Intacs. Intacs have been removed from 34 eyes in KeraVision clinical studies. Reasons for Intacs removals included: 1 for infection, 12 for patient dissatisfaction with correction achieved (undercorrection, overcorrection, astigmatism), 19 for patient dissatisfaction with visual symptoms (glare, halos, difficulty with night vision, etc.) and 2 for other reasons (delayed replacement procedure, FAA restrictions). Intacs can be easily removed in a brief, outpatient procedure.

The removal results from patients in the Intacs clinical studies demonstrate that:

- Patients' vision returned to their preoperative levels by 3 months following removal, in most cases. The patients' were able to be corrected with glasses to 20/20 or better in all cases following removal of Intacs.
- The central cornea remained clear for all patients.
- A small percentage of patients reported more frequent and/or more severe vision symptoms three months following Intacs removal than they had prior to their procedure.

Intacs were replaced for a thinner or thicker size in a total of 12 patients in an effort to improve their vision. Additional data are needed to demonstrate that a patient's vision can be improved by replacing the original Intacs with a different size.

G. Contraindications

You should **NOT** have KeraVision Intacs placed if:

- you have autoimmune or immunodeficiency diseases (for example: lupus, rheumatoid arthritis, AIDS);
- you are pregnant or nursing;
- you have known conditions of the eye that may increase the likelihood of future problems; or

- you are taking prescription medications that may affect corneal healing or your vision. You should discuss all medications you take, even over-the-counter medications, with your eye doctor.

H. Warnings

Discuss with your doctor if:

- you have insulin-dependent diabetes or other medical conditions that affect wound healing; or
- you have had a *Herpes* infection in your eyes.

I. Precautions

- If your nearsightedness is -2.375 to -3.00 diopters, your results may not be as good as those of patients who are less nearsighted. Patients in this range of nearsightedness may be more likely to have their Intacs removed due to dissatisfaction with their results.
- If your nearsightedness is -1.00 diopter, you are more likely to be overcorrected resulting in blurred near vision without glasses.
- The long-term effect of Intacs on the cornea has not been established.
- If your pupils are large under low light conditions, you are more likely to experience some visual symptoms such as glare and sensitivity to light.
- Under poor visibility conditions, such as dim light or fog, you may have some reduction in the sharpness of your vision.
- If your Intacs are removed, the results of future surgical procedures to correct your vision are not known.

J. Are You A Good Candidate For KeraVision Intacs?

If you are considering KeraVision Intacs, you must:

- be at least 21 years of age;
- have healthy eyes that are free from disease or corneal abnormality (for example: scarring or infection);
- have nearsightedness between -1.00 to -3.00 diopters with no more than 1.00 diopter of astigmatism;

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- have documented evidence that the change in your refraction is 0.50 diopter or less for at least 12 months prior to your preoperative exam;
- be informed of the risks and benefits as compared to other available treatments for nearsightedness; and
- be willing to sign an informed consent form, if provided by your eye care professional.

Although your vision without glasses will be improved, you may still need to wear glasses to perform some tasks after the procedure. KeraVision Intacs do NOT eliminate the need for reading glasses. The need for reading glasses is caused by a natural condition of aging called presbyopia. You may need reading glasses after the procedure even if you did not wear them before.

Additionally, the vision requirements of some occupations cannot be met by having any refractive surgery, including KeraVision Intacs.

K. What You Need to Know About the KeraVision Procedure

It is important that you are informed of what to expect before, during and after the procedure. Detailed instructions about how to care for your eye following the KeraVision procedure can be found in Attachment 1. A copy of the detailed information that has been provided to your eye care professional on the "Indication For Use," "Contraindications," "Warnings" and "Precautions" can be found in Attachment 2.

Before the Procedure

You will need to have a preoperative eye examination to determine if your eye is healthy and is suitable for this procedure. Your examination will include a variety of standard ophthalmic tests, general medical tests and a review of your medical history.

Important:

- **If you wear contact lenses, it is very important to stop wearing them *2–3 weeks* before your preoperative examination per your doctor's instructions. Failure to do this may produce poor results.**
- **If you wear eye makeup, you should stop 2-3 days before the procedure to reduce the risk of infection after your procedure.**

Please tell your doctor whether you are taking any medications or have any known allergies or reactions to medication. Your doctor will advise you on whether or not you will be allowed to eat or drink prior to the procedure. You should arrange for transportation after the procedure and to your next examination, since you should not drive immediately after the procedure. Your doctor will advise you when it is safe to resume driving.

The Day of the Procedure

Your physician will briefly discuss the details of the KeraVision procedure and what to expect during your procedure. Your presurgical preparation will vary depending on the type of anesthesia your doctor chooses. You will be positioned comfortably, facing up, on a surgical table or reclining chair. Your face will be covered with a surgical drape exposing only the surgery eye. The surgeon will place an instrument between your eyelids to hold your eye open during the procedure. Anesthetic (numbing) drops may be placed in the procedure eye. The procedure will be performed using an operating microscope. A special surgical knife will be used to make a single small incision. A device will be placed on your eye to keep it steady during the procedure. You may experience some discomfort (typically a pressure sensation) during this part of the procedure. It takes approximately 15 minutes to place Intacs in your eye. The total procedure, including the presurgical preparation, is usually completed in less than one hour.

After Intacs are placed in your eye, your doctor will put some drops or ointment into your eye to reduce swelling. Your eye may then be covered for your protection and comfort. You may experience some discomfort or pain in your eye following the procedure. Most patients describe their discomfort as moderate and it typically diminishes within 48 hours. Your doctor may recommend a medication to help ease your discomfort. Please remember to make arrangements for transportation as you should not drive the day of your procedure.

The First Weeks After the Procedure

Your doctor will typically examine your eye the day following your procedure. You will be mildly sensitive to light and will have the feeling that something is in your eye for the first few days. Sunglasses may make you more comfortable during this time.

Important:

- Do not rub your eye for the first six months after the procedure. This is important to promote proper healing of the incision.

For the first few weeks following the procedure, your eye will be healing. During this time, you will need to take special precautions with your eye to keep it clean and to protect it from injury and infection.

Your doctor should prescribe an antibiotic to be used following the procedure. Apply the antibiotic directly into your eye as instructed. Your doctor may prescribe steroid drops for the first week or two following the procedure to decrease irritation and redness of your eye.

IMPORTANT:

- Use the steriod eye drops and lubricants, as instructed by your doctor. Your surgical results depend upon following your doctor's directions.

Your doctor may recommend that you may wear an eye shield at night. The shield should be worn to protect your eye from irritation and injury, such as rubbing or scratching, while you sleep.

Most patients do not experience significant pain following the procedure. If you do experience pain, ask your doctor about taking medication, such as a pain reliever, to ease the discomfort. Other pain medication may be prescribed by your doctor.

WARNING:

- You should **immediately** contact your doctor if you experience any pain, discomfort, feeling that something is in your eye or change in your vision after the initial postoperative recovery period (typically 7 days).
- Your doctor will monitor you for any side effects if steroid eye drops are used following the procedure. Prolonged topical steroid use may cause ocular hypertension (an increase in the pressure inside the eye), glaucoma (a condition usually associated with high eye pressure that can result in damage to the nerve at the back of the eye and possible loss of vision) or cataract formation (an opacity or clouding of the natural lens inside the eye that can cause a loss of vision).

L. Questions to Ask Your Doctor

You may want to ask the following questions to help you decide if KeraVision Intacs are right for you:

- What other options are available for correcting my nearsightedness?
- Will I have to limit my activities after the KeraVision procedure, and for how long?
- What are the benefits of Intacs for my amount of nearsightedness?
- What type of vision can I expect in the first few weeks after the procedure?
- If Intacs do not correct my vision, what is the possibility that I may require a different prescription for my glasses? Could my need for glasses increase over time?
- How are Intacs likely to affect my need to wear glasses or contact lenses as I get older?
- After having the procedure will my cornea heal differently if injured?
- Should I have Intacs placed in my other eye? If so, how long will I have to wait before I can have the procedure performed on my other eye?
- When will I be able to return to work/resume normal activities?
- What vision problems might I experience if I have Intacs placed in one eye only?

Discuss the cost of the KeraVision procedure and follow-up care requirements with your doctor. Most health insurance policies do not cover the cost of refractive surgery.

M. Self-Test

Are You an Informed Patient?

Take the test below and see if you can correctly answer these questions after reading this booklet.

		TRUE	FALSE
1.	The procedure for placing KeraVision Intacs is risk-free.	☐	☐
2.	All refractive surgery procedures are the same.	☐	☐
3.	It does not matter if I wear my contact lenses when my doctor told me not to wear them.	☐	☐
4.	After the procedure, there is a good chance that I will be less dependent on glasses.	☐	☐
5.	I will be able to drive immediately after the procedure.	☐	☐
6.	I may still need to wear glasses after the KeraVision procedure.	☐	☐
7.	There is a risk that I may have difficulty driving at night.	☐	☐
8.	It does not matter if I am pregnant and plan to undergo this procedure.	☐	☐
9.	If I have an autoimmune disease, I am still a good candidate for KeraVision Intacs.	☐	☐

You can find the answers to the Self-Test at the bottom of Page 14.

N. Summary of Important Information

- The KeraVision procedure does not permanently alter the central part of the cornea and Intacs can be removed or replaced.
- You may still need glasses for some tasks after having Intacs placed.
- The KeraVision procedure does not eliminate the need for reading glasses, even if you never have worn them before.
- Your vision must be stable before the procedure. You will need written documentation that your prescription (correction) has changed less than 0.50 diopter over the past 12 months.
- Pregnant or nursing women should not have the procedure performed.
- You would **NOT** be a good candidate if you have autoimmune or immunodeficiency diseases (for example: lupus, rheumatoid arthritis, AIDS), insulin-dependent diabetes or other conditions that make wound healing difficult.
- The KeraVision procedure may result in some discomfort. The procedure is not risk-free. Please carefully read this entire booklet, especially the sections on Benefits and Risks, before you agree to the procedure.
- Alternatives to Intacs include, but are not limited to, glasses, contact lenses, Radial Keratotomy (RK; corrects vision by making several radial incisions to flatten the cornea) and laser refractive surgery (corrects vision by removing tissue from the center of the cornea using an excimer laser).
- The KeraVision procedure to place Intacs is not a version of RK or laser refractive surgery.
- The vision requirements of some occupations cannot be met by having any refractive surgery, including KeraVision Intacs.
- Before considering KeraVision Intacs you should:

  a. have a complete eye examination

  b. talk with one or more eye care professionals familiar with refractive surgery about the potential risks and benefits of KeraVision Intacs.

O. Patient Assistance Information

Primary Eye Care Professional

Name: _____

Address: _____

_____

Phone: _____

KeraVision Intacs Doctor

Name: _____

Address: _____

_____

Phone: _____

Procedure Location

Name: _____

Address: _____

_____

Phone: _____

Answers to Self-Test Questions:

1. False (see Page 4); 2. False (see Page 1); 3. False (see Page 8); 4. True (see Page 4); 5. False (see Page 9); 6. True (see Page 8); 7. True (see Page 5); 8. False (see Page 6); 9. False (see Page 6).

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Attachment 1

Patient Postoperative Care Information

Now that you have received your KeraVision Intacs, it's very important to care for and protect your operative eye while it is healing. You may experience a temporary distortion of vision for several days after your procedure; this is normal and will be discussed with you during your regularly scheduled follow-up examinations.

There are a number of simple things you can do to avoid potential problems with your eye. The following guidelines have been developed by your eye doctor and KeraVision to help you understand how to care for your eye following the KeraVision procedure. Please read and follow these guidelines carefully.

FOLLOW DIRECTIONS ON ALL OF YOUR MEDICATIONS

- Use all eye drops, ointments or other medications as prescribed. Do not use any over-the-counter substitutes, unless instructed to do so by your eye doctor.
- When putting eye drops into your eye, take special care not to touch the tip of the applicator to your eye or your fingers.
- **If you have a reaction (redness, sensitivity or other symptoms) to any medication, stop using the medication and notify your eye doctor immediately**. An alternate medication may be prescribed.

DON'T LET YOUR EYES BECOME IRRITATED

- **Do not rub your operative eye for the first six months after surgery**. This is important to promote proper healing of the incision.
- Avoid rubbing or injuring your eye while you sleep. Use the nighttime eye shield for the entire time period your eye doctor recommends.
- Keep the area around your eyelid clean. To avoid contamination, use disposable tissues rather than cloth handkerchiefs or fuzzy towels.
- **Do not get tap water in your eyes for the first few weeks following your procedure**.

- Don't let shampoo, face creams, sprays or facial cleansers get into your operative eye. During the early months following your procedure, these products may irritate your eye more than usual. If you do get something in your eye, immediately flush your eye with sterile preservative-free artificial tears or sterile eye wash.

- Avoid using eye makeup for the first 7 days after your procedure or until your eye doctor says that your cornea has healed.

- Avoid areas where there may be a lot of dust, pollen or airborne debris and particles. Protect your eyes; wear safety glasses or protective goggles when appropriate, during work or sports activities. When in doubt, ask your eye doctor.

- **Do not wear a contact lens on your operative eye.**

- If your eyes tend to be dry, or are frequently exposed to drying conditions, sterile, preservative-free artificial tears may be prescribed to ease any discomfort. You should also consider taking artificial tears with you for air travel, as cabin air can dry your eyes.

- Wear sunglasses with UV protection to ease any discomfort due to light sensitivity.

POSTPONE STRENUOUS EXERCISE

- Lifting or moving anything over 15 pounds can increase your eye's intraocular pressure. While this is normally not a concern, it should be avoided during the early months following your procedure.

- Avoid swimming in pools for the first week after your procedure. Lake and ocean swimming should be avoided for the first month. When swimming, always wear protective goggles.

- If you are involved in aggressive sports involving body contact or sudden jarring motions, always wear protective goggles.

ENJOY YOUR NORMAL ACTIVITIES

- Don't be afraid to use your eyes as you normally would. It will not harm your eyes to read, watch TV, work on the computer or to resume moderate exercise, such as jogging, walking or aerobics.

ENROLL IN THE PATIENT REGISTRY & CARRY YOUR PATIENT ID CARD

- You were given an Intacs Patient Registry card. **Please fill out the card and mail it to KeraVision as soon as possible.** It is very important that you complete this step so that KeraVision can keep you informed of any future developments regarding your Intacs.

- Shortly after your procedure, you were given a patient ID card that contains information about your KeraVision Intacs. **Please carry this card with you at all times.** You may also want to keep a copy of this card with your personal medical files.

- In the event of an emergency, your patient ID card will provide vital information about your KeraVision Intacs, including the name and phone number of the eye doctor who performed the procedure.

- When visiting your family physician, or other medical professionals, be sure to show them your patient ID card.

- If you misplace your patient ID card, contact your eye doctor for a replacement.

KEEP YOUR FOLLOW-UP APPOINTMENTS

- Careful monitoring of your operative eye is essential, so please make every effort to keep all of your follow-up appointments. If you need to cancel an appointment, be prepared to reschedule your appointment when you call.

- If you become pregnant or initiate hormone replacement therapy, notify your eye doctor. Your vision may fluctuate during this time as a result of hormonal changes.

- Inform your eye doctor of any address or phone number changes.

TAKE QUICK ACTION IF PROBLEMS OCCUR

If you experience any symptoms, inform your eye doctor as soon as possible, no matter how minor your symptoms may seem.

If you experience pain, significant discomfort or worsening of vision, call your eye doctor immediately.

In the event of a medical emergency involving your operative eye, contact the eye doctor who performed your procedure. If this is not possible, go directly to the local hospital. Be sure to inform them of your KeraVision Intacs, give them your patient ID card and have them notify your eye doctor as soon as possible.

Attachment 2

Professional Labeling

A. Indication For Use

KeraVision Intacs are intended for the reduction or elimination of mild myopia (-1.00 to -3.00 diopters spherical equivalent at the spectacle plane) in patients:

- who are 21 years of age or older;
- with documented stability of refraction as demonstrated by a change of less than or equal to 0.50 diopter for at least 12 months prior to the preoperative examination; and
- where the astigmatic component is +1.00 diopter or less.

B. Contraindications

KeraVision Intacs are contraindicated:

- in patients with collagen vascular, autoimmune or immunodeficiency diseases;
- in pregnant or nursing women;
- in the presence of ocular conditions, such as keratoconus, recurrent corneal erosion syndrome or corneal dystrophy, that may predispose the patient to future complications; or
- in patients who are taking one or more of the following medications: isotretinoin (Accutane[1]); amiodarone (Cordarone[2]); sumatriptan (Imitrex[3]).

[1] Accutane® is a registered trademark of Roche Pharmaceuticals.
[2] Cordarone® is a registered trademark of Wyeth-Ayerst Laboratories.
[3] Imitrex® is a registered trademark of Glaxo-Wellcome, Inc.

C. Warnings

- Use of the Vacuum Centering Guide subjects the eye to increased intraocular pressure. **Continuous application of vacuum should be limited to 3 minutes or less and to no more than 750 mBar.** If it is necessary to reapply the Vacuum Centering Guide, wait 5 minutes to allow normal vascular perfusion of the eye to occur before reestablishing suction.

- Intacs are not recommended in patients with systemic diseases likely to affect wound healing, such as insulin-dependent diabetes or severe atopic disease.

- Intacs are not recommended in patients with a history of ophthalmic *Herpes simplex* or *Herpes zoster*.

- Intacs are intended for single use only; do not reuse or resterilize.

D. Precautions

- Patients who receive the 0.35 mm Intacs may experience a reduced outcome as compared to patients who receive a 0.25 mm or 0.30 mm Intacs product. Additionally, there may be an increased removal rate for 0.35 mm patients due to dissatisfaction with their outcome.

- Patients with myopia of -1.00 diopter are more likely to be overcorrected.

- The long-term effect of Intacs on endothelial cell density has not been established.

- A temporary decrease in central corneal sensation has been noted in some patients. No clinical consequences were demonstrated in the U.S. clinical trials.

- Some patients with large dilated pupil diameters (≥7.0 mm) are predisposed to low light visual symptoms postoperatively and should be appropriately advised.

- Under mesopic conditions, patients may experience some loss in contrast sensitivity at low spatial frequencies (1.5 cpd).

- The safety and effectiveness of alternative refractive procedures following the removal of Intacs have not been established.

- The safety and effectiveness of KeraVision Intacs have **NOT** been established:

– in patients with progressive myopia or astigmatism, nuclear sclerosis or other crystalline lens opacity, corneal abnormality, or previous corneal surgery or trauma;

  – for patients under 21 years of age;

  – for corneas that are steeper than 46 diopters or flatter than 40 diopters;

  – for corneas with a central thickness less than 480 microns or peripheral thickness less than 570 microns;

  – in patients with greater than -3.50 diopters of myopia or with astigmatism greater than +1.00 diopter; or

  – in long-term use.

KeraVision Intacs Manufacturer

KERAVISION®
Shaping the Way the World Sees®

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About KeraVision, Inc.

KeraVision, a vision correction company, was founded in 1986. KeraVision has pioneered a new approach to treating common vision problems, one that seeks to reshape the cornea by surgically adding materials rather than cutting or removing tissue like other refractive surgery methods. KeraVision is also developing potential applications of KeraVision Intacs for the treatment of farsightedness and astigmatism. It is estimated that over 50% of the world's population experience common vision problems.

Located in Fremont, California, KeraVision works closely with a worldwide team of ophthalmic surgeons and scientists who are leaders in the field of vision correction.