

# **GUSTAVO TAMAYO MD**

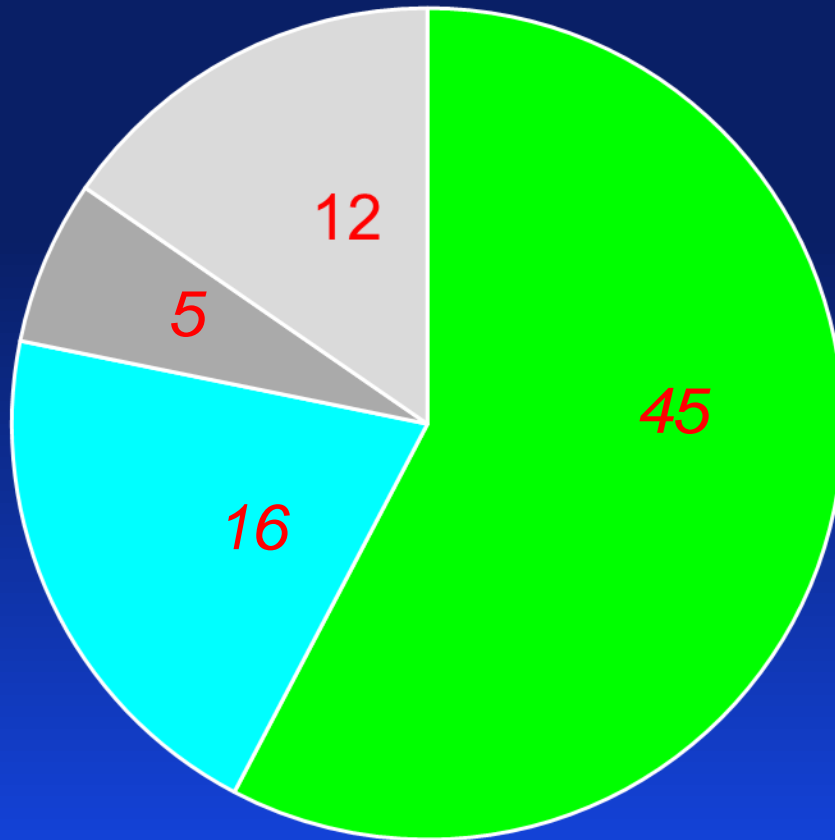
*TREATMENT OF IRREGULAR ASTIGMATISM WITH A  
COMBINATION OF A HIGH RESOLUTION WAVEFRONT  
DEVICE AND SIMULTANEOUS CROSS LINKING TREATMENT*

***BOGOTA LASER OCULAR SURGERY CENTER  
BOGOTA, COLOMBIA***

***MEMBER OF AMO ADVISORY BOARD  
MEMBER OF PRESBIA ADVISORY BOARD  
MEMBER OF AVEDRO ADVISORY BOARD***

# CHART REVIEW OF CASES WITH IRREGULAR ASTIGMATISM TREATED IN THE LAST TWO YEARS WITH A COMBINATION OF A HIGH RESOLUTION WAVEFRONT DEVICE AND SIMULTANEOUS ACCELERATED CROSS LINKING

IRREGULAR ASTIGMATISM CASES



*Follow up mean  
16 months  
From 07 months to  
27 months*

■ KERATOCONUS

■ POST RK

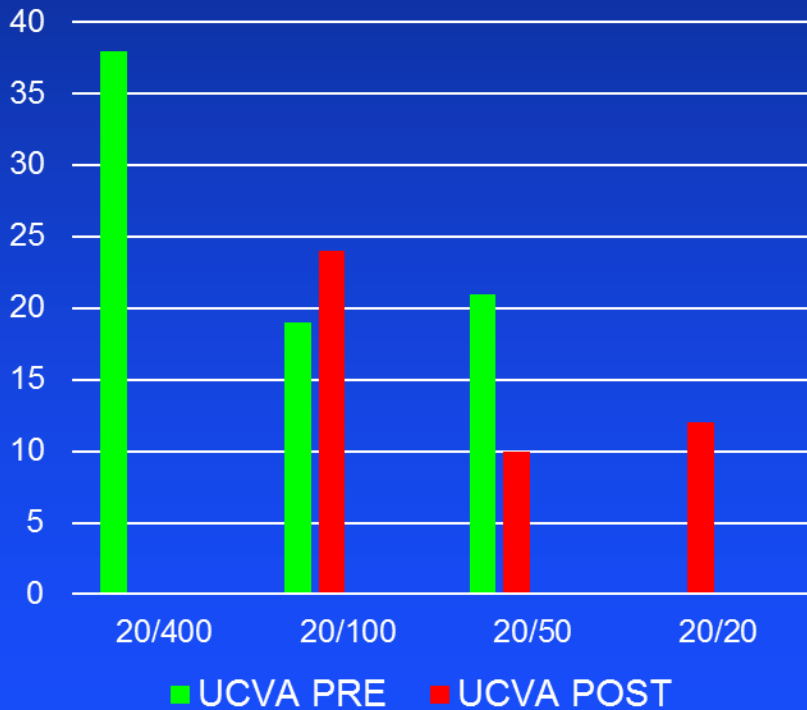
■ POST QPP

■ ECTASIA

# CHART REVIEW OF CASES WITH IRREGULAR ASTIGMATISM TREATED IN THE LAST TWO YEARS WITH A COMBINATION OF A HIGH RESOLUTION WAVEFRONT DEVICE AND SIMULTANEOUS ACCELERATED CROSS LINKING

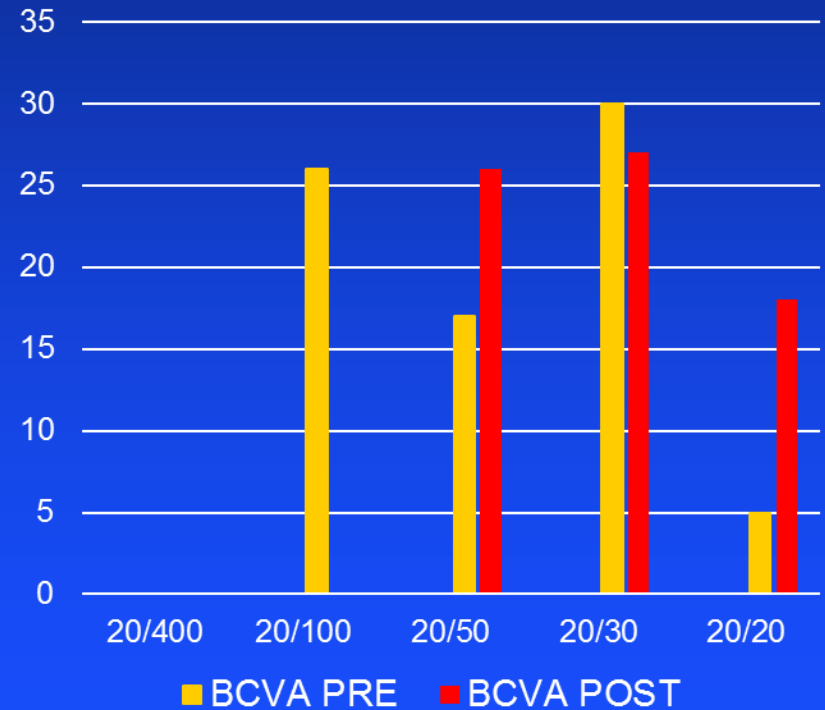
## UCVA

### CHANGE IN VISION



## BCVA

### CHANGE IN VISION



# SAFETY OF PROCEDURE

	LOSS OF 2 LINES	LOSS OF 1 LINE	NO CHANGE	GAIN 1 LINE	GAIN 2 LINES
KERATO CONUS	0	1 (2.2%)	25 (55.5%)	16 (35.5%)	3 (6.6%)
PK	0	0	4 (80%)	1 (20%)	0
ECTASIA	0	0	8 (66.6%)	2 (16.6%)	2 (16.6%)
RK	0	2 (12.2%)	8 (50.0%)	3 (18.7%)	3 (18.7%)
<b>TOTAL</b>	<b>0</b>	<b>3 (3.84%)</b>	<b>45 (57.6%)</b>	<b>22 (28.2%)</b>	<b>8 (10.2%)</b>

# **TREATMENT OF IRREGULAR ASTIGMATISM WITH A COMBINATION OF A HIGH RESOLUTION WAVEFRONT DEVICE AND SIMULTANEOUS CROSS LINKING**

## **OTHER RESULTS**

- ❖ Improvement in HOA in general with a mean of 0.74 to 0.41 in the postop.**
- ❖ Coma changed from a mean 0.54 to 0.28 in the postop.**
- ❖ Keratometry varied from 48.6 to 44.2 in the postoperative examination.**
- ❖ Pentacam K Max reading from 47.3 to 44.6**
- ❖ Stability: no changes since the 6 month visit in those numbers.**

**EXAMPLE NUMBER 1  
KERATOCONUS CASE  
(IRREGULAR ASTIGMATISM)**

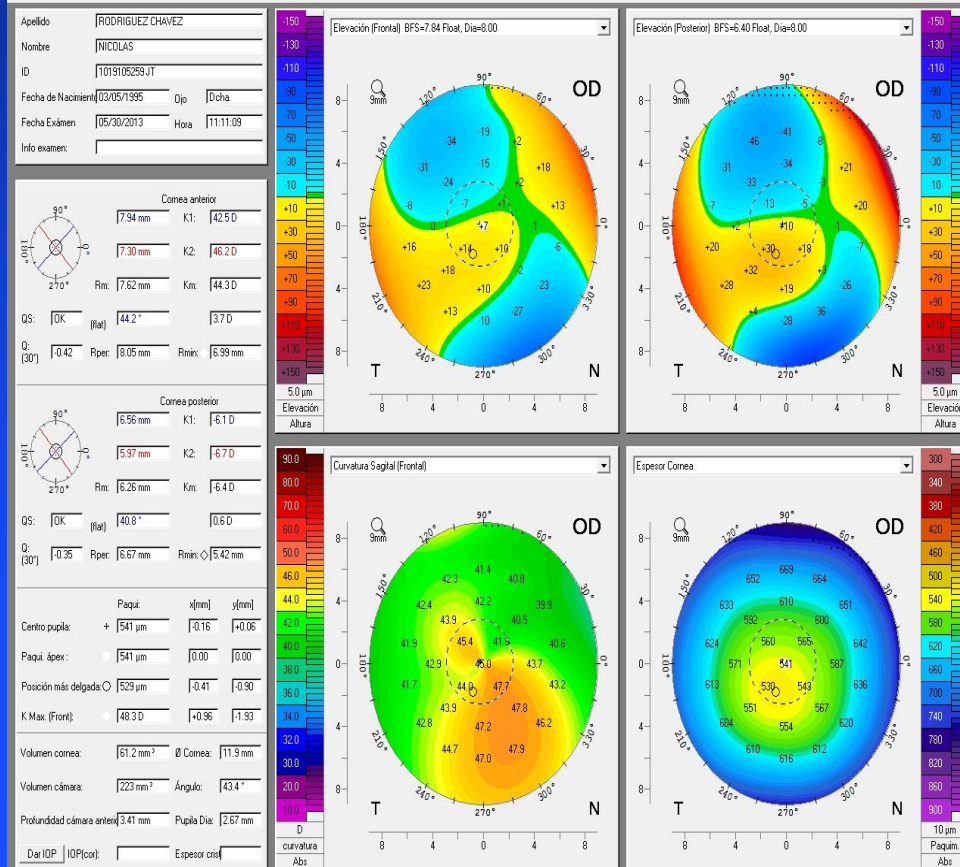
- 1. Male 21 yrs of age.**
- 2. UCVA 20/400 and J7**
- 3. BCVA: -1.50 -5.25 X 40 **20/30****
- 4. June/04/2013 Lasek Idesign plus Accelerated Cross Linking.**
- 5. July/09/2015 UCVA is 20/30**
- 6. BCVA: +0.50 -1.00X45 **20/25****
- 7. Constant use of anti allergic drops.**
- 8. Rubbing was forbidden.**

# EXAMPLE NUMBER 1 KERATOCONUS CASE (IRREGULAR ASTIGMATISM)

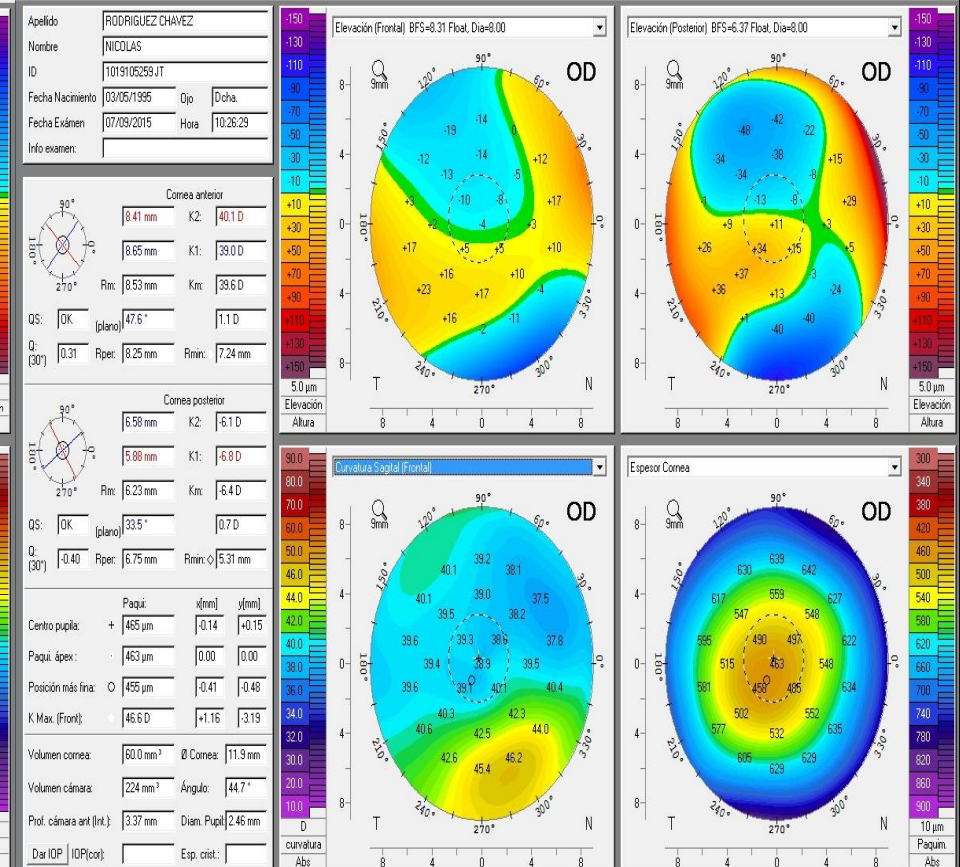
## KC PREOP PENTACAM

## POST OP TWO YEARS

### OCULUS - PENTACAM



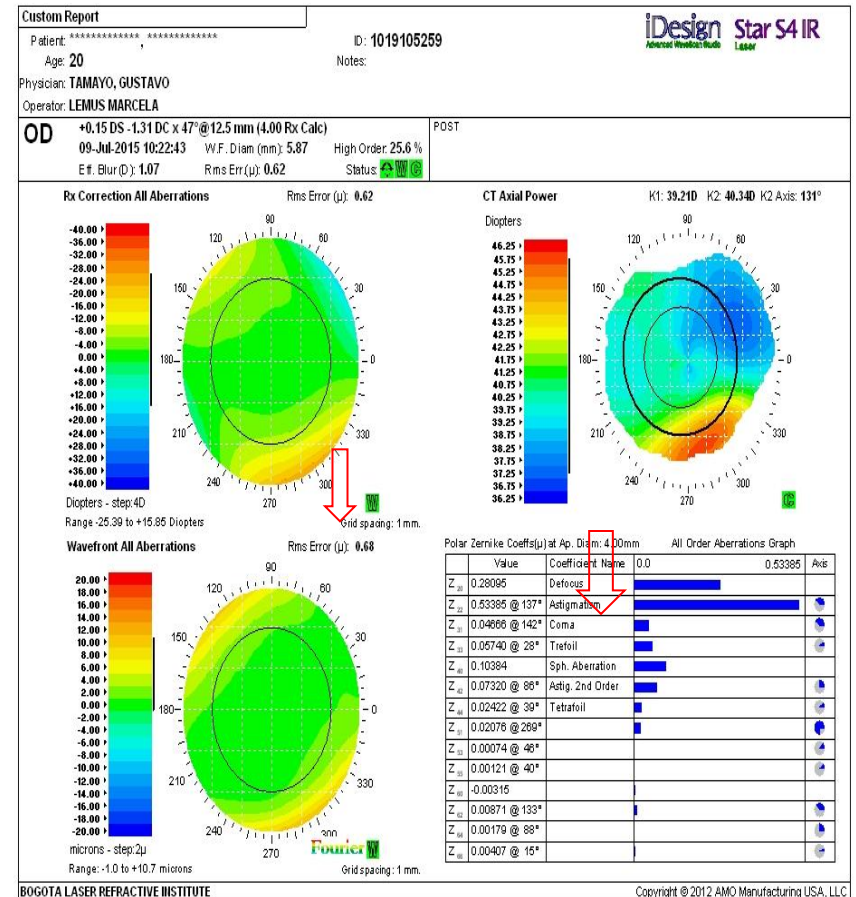
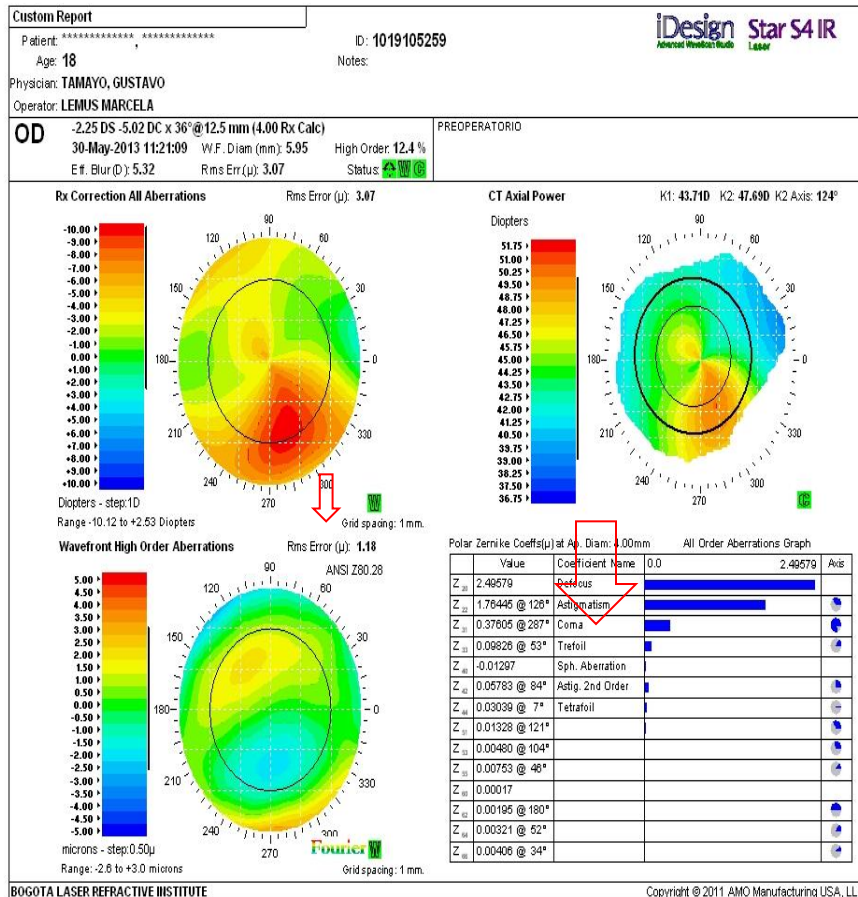
### OCULUS - PENTACAM 4 mapas de color opcionales



# EXAMPLE NUMBER 1 KERATOCONUS CASE (IRREGULAR ASTIGMATISM)

## PREOP HR WAVEFRONT

## POSTOP HR WF 2 YEARS





## **EXAMPLE NUMBER 2**

### **KERATOCONUS CASE WITH INTRASTROMAL RING (IRREGULAR ASTIGMATISM)**

- 1. Female 36 years of age.**
- 2. 04/09/2011 20/100 -1.75 -2.25X110 20/40**
- 3. 04/18/2011 Intrastromal Ring with Intralase**
- 4. 05/09/2013 20/50 -0.50 -1.75X130 20/25.**
- 5. 05/28/2013 Lasek Idesign plus Acc KXL.**
- 6. 07/29/2014 UCVA 20/25**
- 7. BCVA: +0.50 -1.00X160 20/20**

# EXAMPLE NUMBER 2 KERATOCONUS CASE WITH INTRASTROMAL RING (IRREGULAR ASTIGMATISM)

## PREOP PENTACAM

## POSTOP PENTACAM 1 YEAR

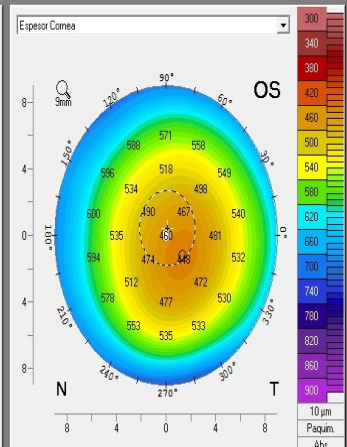
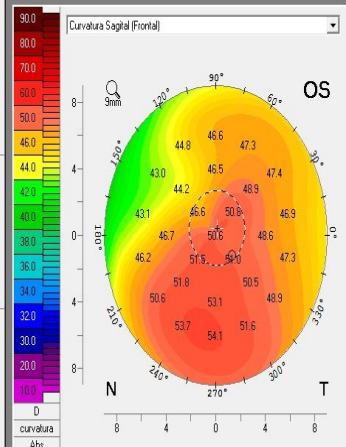
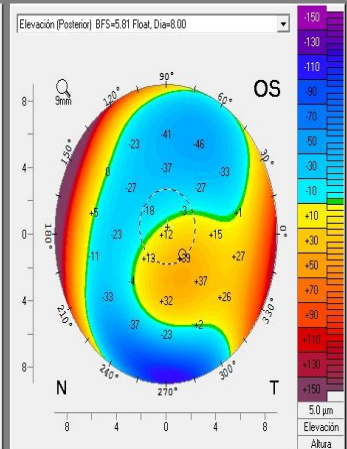
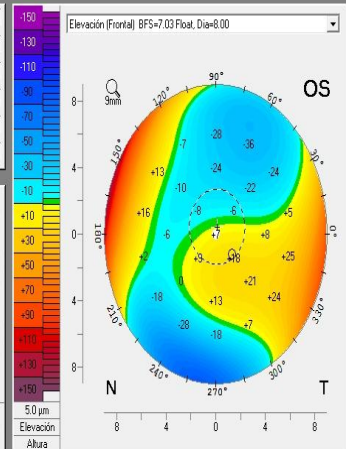
OCULUS - PENTACAM

Apellido [Chavaro]  
Nombre [Carolina]  
ID [52085420JT]  
Fecha de Nacimiento [06/06/1974] Ojo [Izq]  
Fecha Examen [06/09/2013] Hora [07:37:31]  
Info examen:

Cornea anterior  
7.04 mm K1: 47.9 D  
6.63 mm K2: 50.9 D  
Rm: 6.84 mm Km: 49.4 D  
OS: OK (I) 144.6° 3.0 D  
Q: 0.43 Riper: 7.33 mm Rmir: 6.20 mm

Cornea posterior  
5.40 mm K1: -7.4 D  
5.78 mm K2: -6.9 D  
Rm: 5.59 mm Km: -7.2 D  
OS: OK (I) 129.4° 0.5 D  
Q: 0.40 Riper: 6.25 mm Rmir: 4.95 mm

Paquet x(mm) y(mm)  
Centro pupila + 463 μm +0.06 +0.22  
Paquet espes: 480 μm 0.00 0.00  
Posición más delgada 448 μm +0.66 +0.59  
K Max. (Front) 54.4 D 0.53 2.89  
Volumen cornea: 57.1 mm³ ∅ Cornea: 11.4 mm  
Volumen cámara: 188 mm³ Ángulo: 47.9°  
Profundidad cámara anterior 3.47 mm Pupila Dia: 2.25 mm  
Dar IOP IOP(corr) Espesor cor



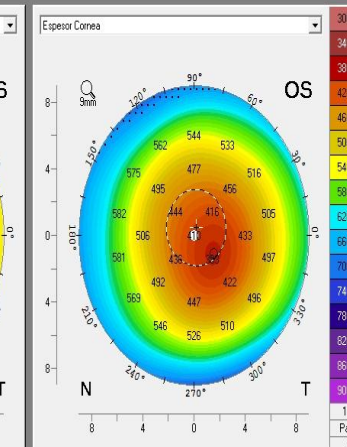
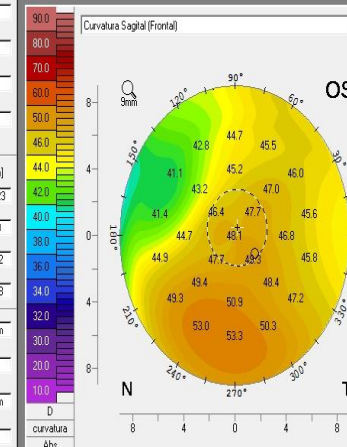
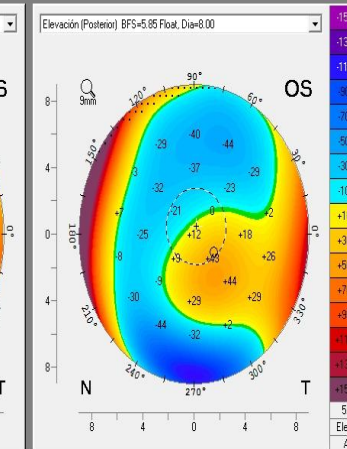
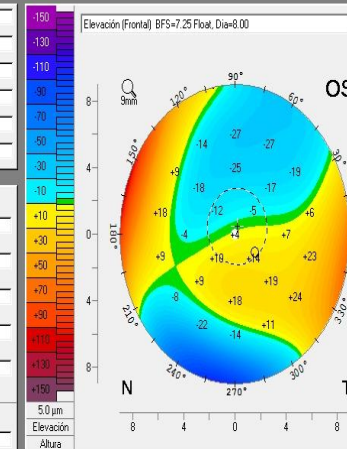
OCULUS - PENTACAM

Apellido [Chavaro]  
Nombre [Carolina]  
ID [52085420JT]  
Fecha de Nacimiento [06/06/1974] Ojo [Izq]  
Fecha Examen [07/29/2014] Hora [09:29:16]  
Info examen:

Cornea anterior  
7.23 mm K1: 46.7 D  
7.04 mm K2: 47.9 D  
Rm: 7.14 mm Km: 47.3 D  
OS: OK (I) 162.1° 1.3 D  
Q: 0.18 Riper: 7.42 mm Rmir: 6.29 mm

Cornea posterior  
5.44 mm K1: -7.4 D  
5.84 mm K2: -6.8 D  
Rm: 5.64 mm Km: -7.1 D  
OS: OK (I) 131.2° 0.5 D  
Q: 0.40 Riper: 6.25 mm Rmir: 4.94 mm

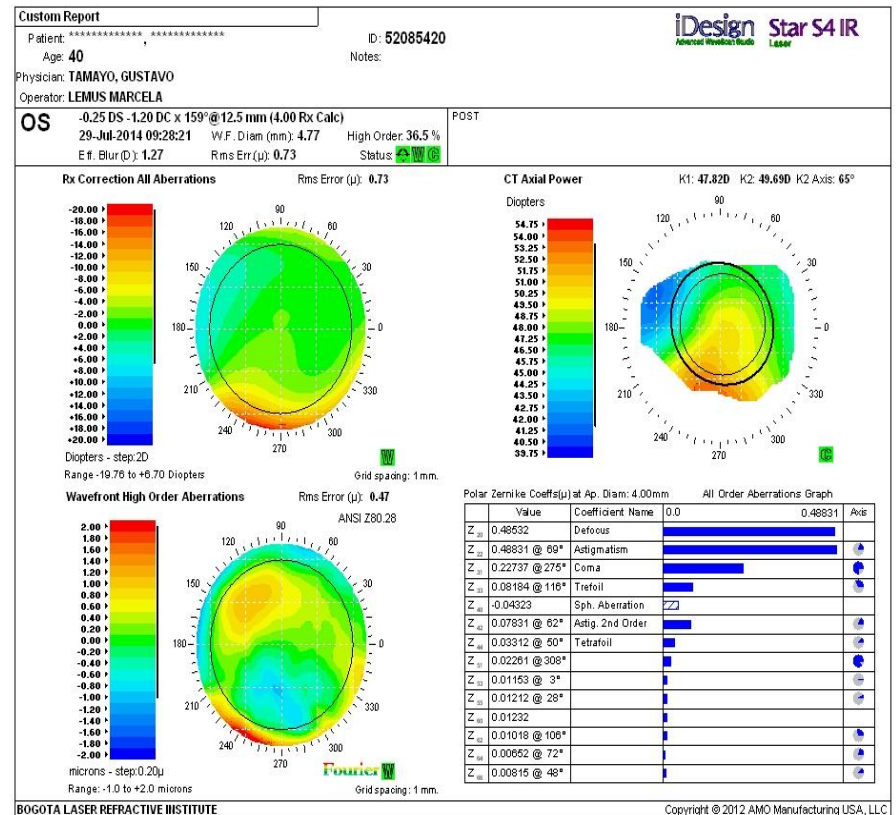
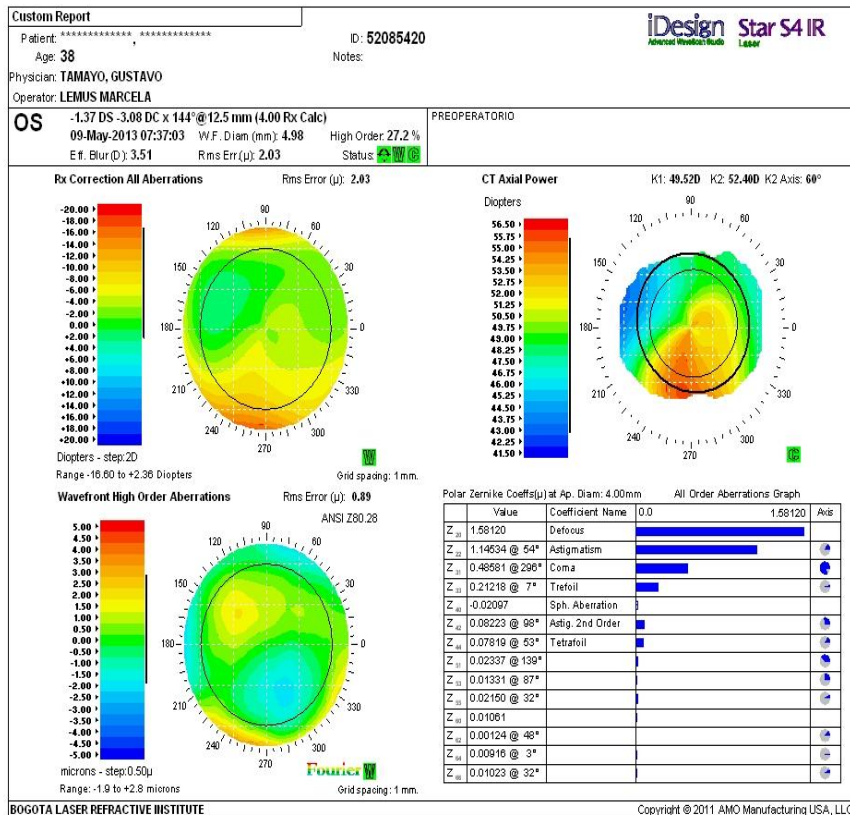
Paquet x(mm) y(mm)  
Centro pupila + 411 μm +0.05 +0.23  
Paquet espes: 410 μm 0.00 0.00  
Posición más delgada 393 μm +0.79 +0.52  
K Max. (Front) 53.5 D 0.52 3.08  
Volumen cornea: 54.9 mm³ ∅ Cornea: 11.4 mm  
Volumen cámara: 168 mm³ Ángulo: 41.5°  
Profundidad cámara anterior 3.71 mm Pupila Dia: 2.31 mm  
Dar IOP IOP(corr) Espesor cor



# EXAMPLE NUMBER 2 KERATOCONUS CASE WITH INTRASTROMAL RING (IRREGULAR ASTIGMATISM)

## HR WAVEFRONT PREOP

## HR WAVEFRONT 1 YEAR POST



# **TREATMENT OF IRREGULAR ASTIGMATISM WITH A COMBINATION OF A HIGH RESOLUTION WAVEFRONT DEVICE AND SIMULTANEOUS CROSS LINKING**

## **CONCLUSIONS**

- 1. Excellent option for the correction of mild to moderate irregular astigmatism.**
- 2. Hard Contact Lens is the only option for those patients.**
- 3. Results are encouraging with great stability and improvement in VA. No loss of 2 lines of BCVA. 96% of the eyes either maintain or gained lines of BCVA.**
- 4. Combination of Wavefront and Cross Linking treats not only the shape of the cornea but also the refractive defect at the same time as a big difference and improvement over Topography Guided Ablation.**