

Pearls to avoid  
unhappy patients  
after  
Contoura LASIK

**Abdelmonem Hamed**

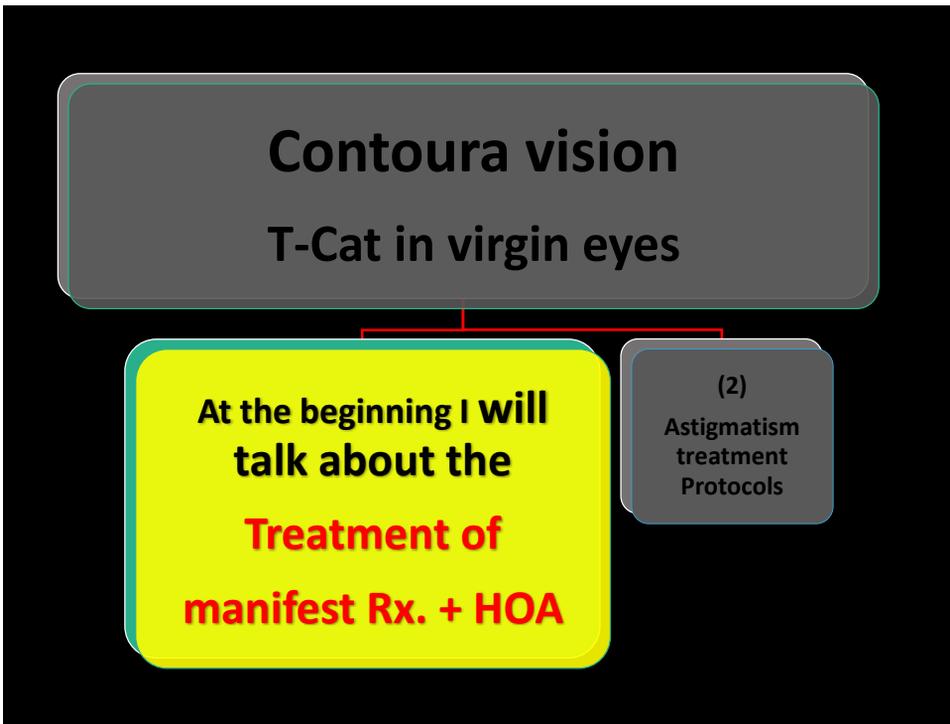
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**T-Cat means (Topo-guided  
Custom Ablation Treatments)**

CONTOURA  
VISION

**Is a T-Cat in  
virgin eyes**



## Why we do Contoura vision in virgin eyes?



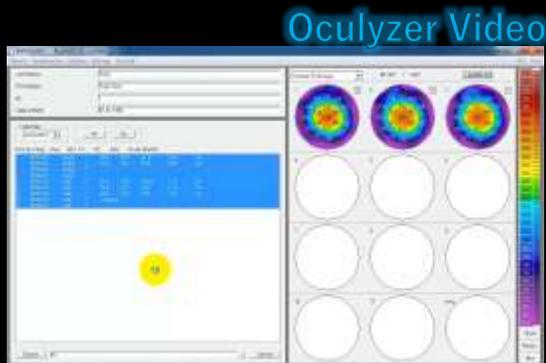
### Because

1. It treats the clinical refraction.
2. It treats @ the same time the HOA of the ant. Cornea.
3. It also fixes the angle kappa.

## So, how can we do that?

The 1<sup>st</sup> step of the **contoura** treatment will be @ the Topolyzer.

1. Taking from 4 to 8 corneal photography maps for each eye, then
2. Unselect the bad topography ones,
3. Finally export @ least 3 good topography maps for each eye to the Allegretto machine.



Allegretto machine

The 2<sup>nd</sup> step of the contoura treatment will be @ the Allegretto machine by  
 Selecting Contoura button



Figure N: Topography Guided (CONTOURA™ / TOPO-G) Selection Method

Now the raw data is transmitted to the Allegretto machine & we can see the median value of them highlighted.

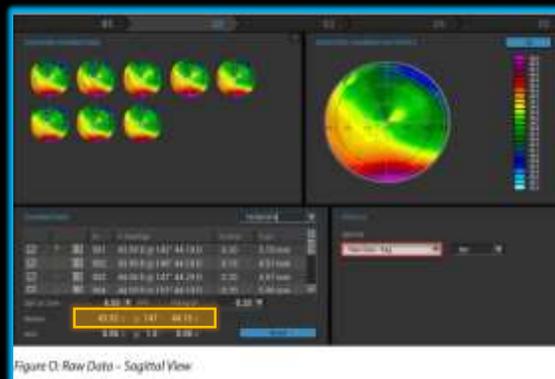
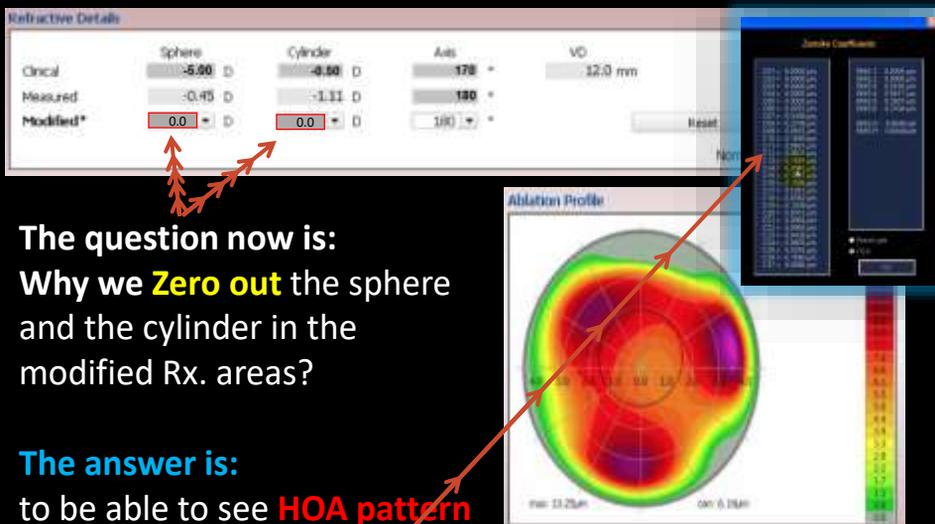


Figure D: Raw Data - Sagittal View

This **VIDEO** illustrates how can we import the data to The Allegretto machine.

1. Measurements
2. Import
3. Start
4. Today
5. Select the Pt. name
6. Load
7. OK
8. Enter the Pt. data
9. Next
10. Pachymetry
11. Enter manifest Rx
12. Check the tilt off
13. Zero out the modified fields
14. Press the Zernike button



Now after getting the information about the HOA of the cornea, we need to **convert that HOA value from microns to dioptres.**

How can we do that?

We can do that by applying this formula



Note

Example applies to CZ = 6.5 mm  
1.0 D (Sphere) = 1.51um / D (C12)

$$CF [dpt] = - \frac{C12 [\mu m]}{1.51}$$

Example:

$$CF = - \frac{1.3056 \mu m}{1.51} = -0.864 D$$

C12 = 1.3950 μm

By dividing the amount of **(HOA/1.51)**

Finally we need to modify the sphere to be able to treat the **clinical Rx. & the HOA as well.**

C4 = 0.0

C12 = -0.29

Refractive Details

	Sphere	Cylinder	Axis	VD
Clinical	-5.00 D	-0.80 D	180	12.0 mm
Measured	-0.45 D	-1.11 D	180	
Modified*	-5.19 D	-0.56 D	180	

Reset

Nimogram 5-101

So, if HOA in diopter = **-0.19** D

Then, the modified sphere = **-5.00** + **-0.19** = **-5.19** D

What is this value over her that is called (the measured sphere)?  
 It is the spherical component of the measured refraction, which has **NO MEANING**

	Sphere	Cylinder	Axis	VD
Clinical	-5.00 D	-0.50 D	0°	12.0 mm
Measured	-0.45 D	-1.11 D	0°	
Modified*	0.0 D	0.0 D	180°	

Buttons: Reset, Nomogram, S 101

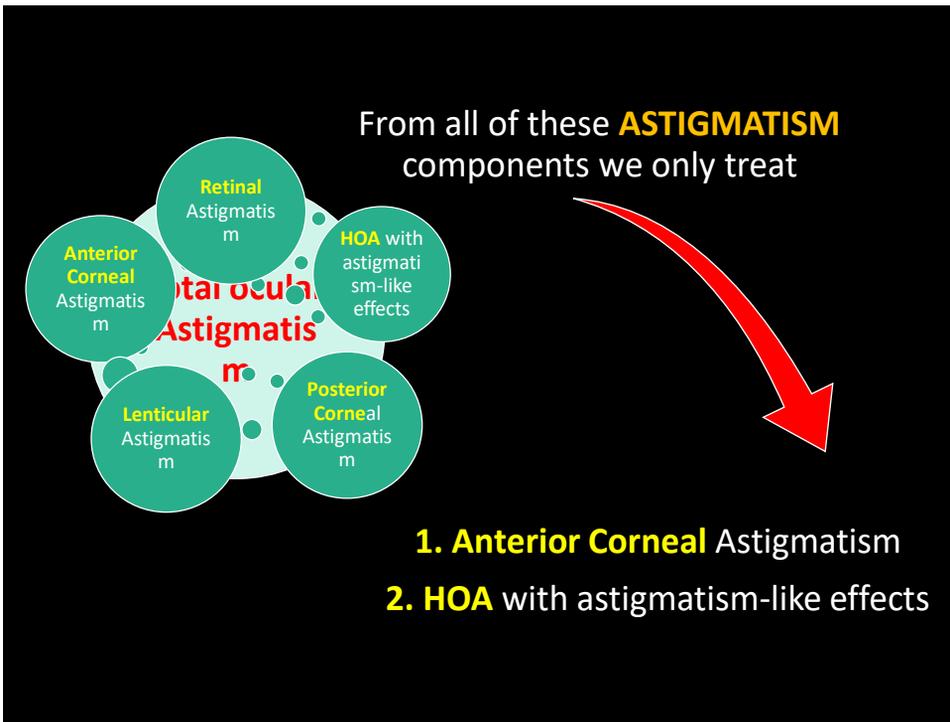
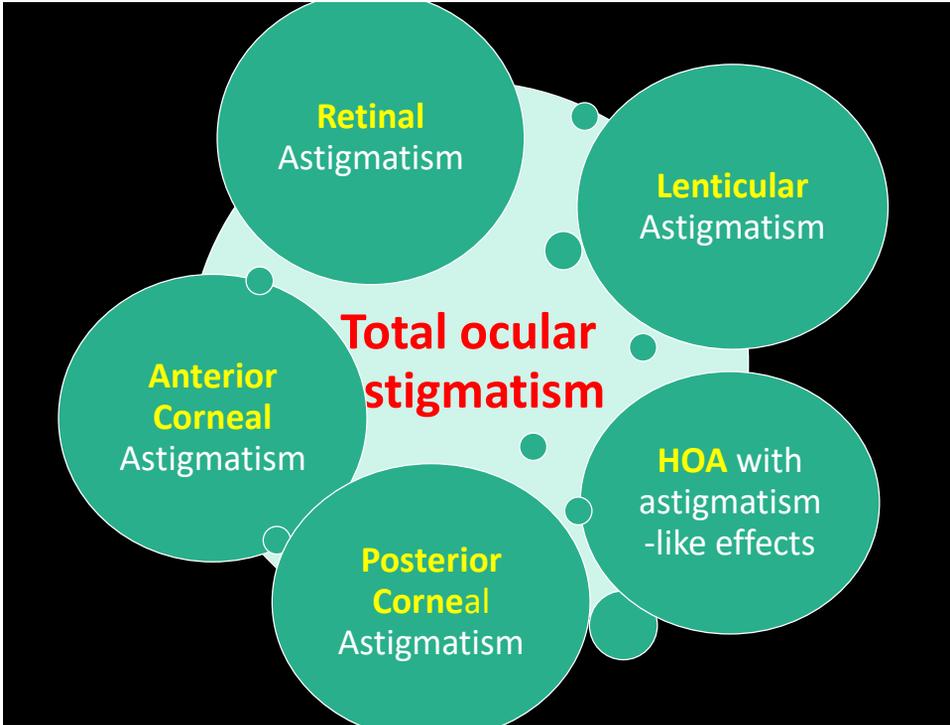
- It is the best fit sphere and should be **disregarded** for planning.
- The topography software has **no axial length data**, and can not calculate the myopia.

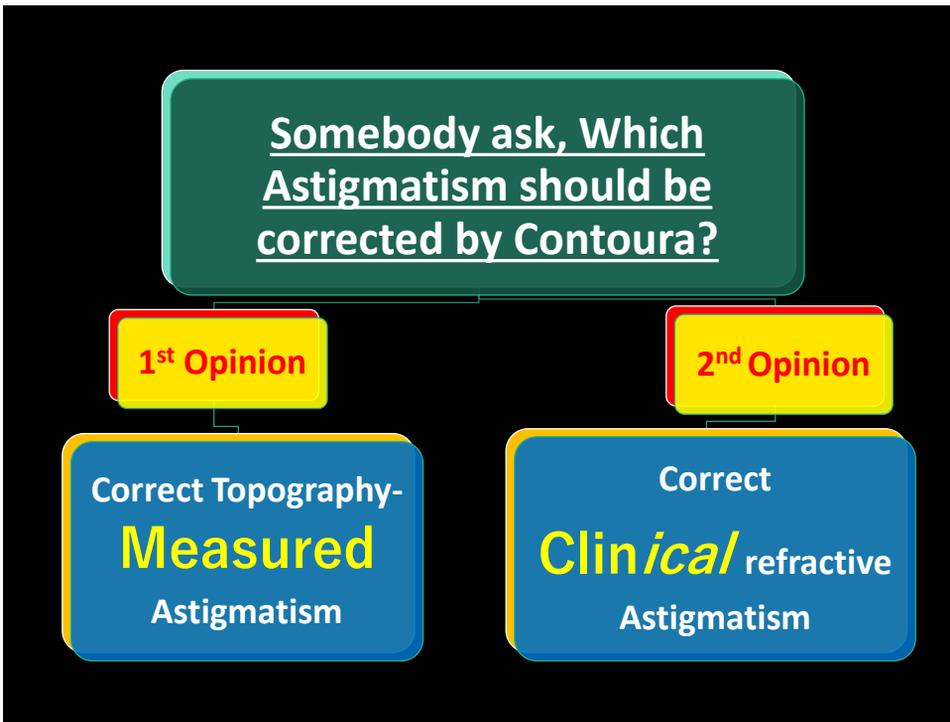
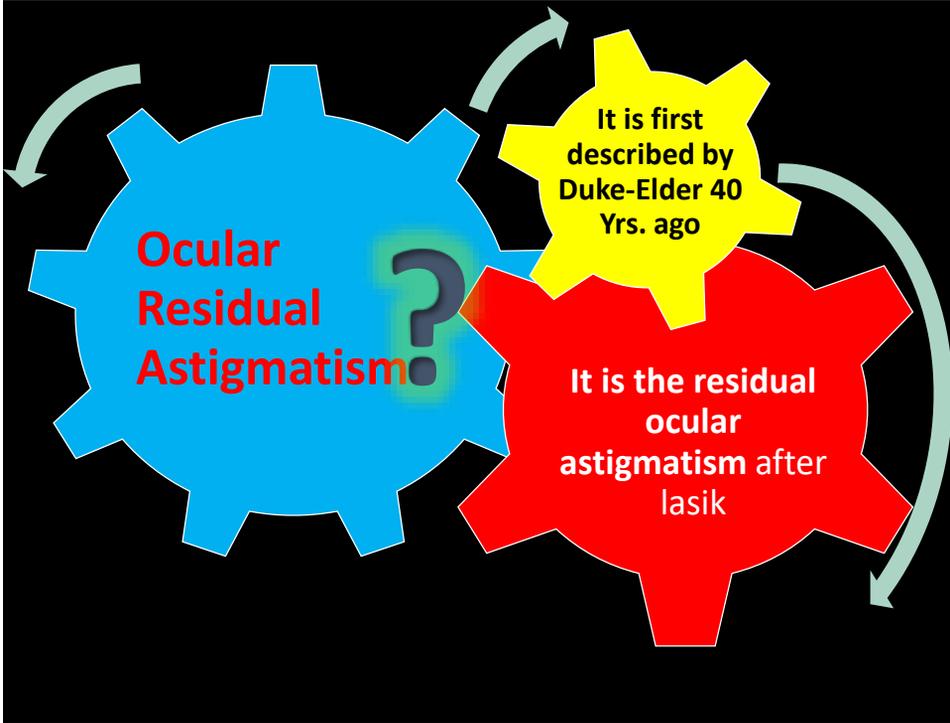
## Contoura vision

### Contoura vision

T-Cat in virgin eyes

Finally I am going to talk about the **Astigmatism treatment Protocols**





**We have another question,**  
**What will we see on the allegretto screen?**



**Clinical**

Astigmatism :  
 • which does not affect the ablation.

**Measured**

Astigmatism  
 It also does not affect the ablation.

**Modified**

Astigmatism:  
 • It Can be modified by the user, and  
 • It do affects the ablation

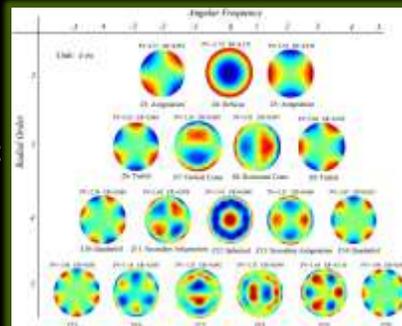
**We have one more question,**  
**How can we set:**  
 1. the power & axis of cylinder?  
 2. the power of sphere?  
 In the modified refraction area.

To be able to answer the previous questions,  
 We need to know 1<sup>st</sup>,  
 What is the **Measured Astigmatism?**



**The measured astigmatism is calculated by the system & takes into account**

1. Anterior Corneal topographic Astigmatism (ACA) +
2. Astigmatism measured from ant. Corneal HOA



## What are the astigmatism treatment protocols?

✓ **LYRA protocol**: Layer Yolked Reduction of Astigmatism protocol

Motwani et al., Clin. Ophthalmology. 2017

✓ **TMR protocol**: Topography Modified Reduction protocol

- It is the same LYRA protocol, however it calculate & manage the HOA @ the same time.

Kanallopos et al., Clin. Ophthalmology. 2016

## The Golden Rules:

Consider recommending **WAVEFRONT OPTIMIZE Ablation** if any of the following conditions apply:



1. If the Difference in power between clinical and measured cylinder is **>1.25 D**
2. If the **clinical cylinder power  $\geq 2.00$  D** & Difference between refraction axis and measured axis is **>5°**
3. If the **clinical cylinder power  $< 2.00$  D** & Difference between refraction axis and measured axis is **>10°**

## Contoura vision software calculator

**Why we have to think, and we have the computer's artificial intelligence?**

	Sphere	Cylinder	Axis	SE
Refraction	0.00	0.00	0	0.00
Measured		0.00	0	
Modified	0.00	0.00	0	0.00
Contoura	0.00	0.00	0	
	C12	Diopter		
HOA	0	0.00		

**Warning Message**

Contoura Software Calculator

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## How can we modify the refraction?

**How can we set the Axis of Modified CYLINDER?**

We set the **modified axis to be** the same value as the **measured axis**

	SPHERE	CYLINDER	AXIS
Refraction			
Measured			179°
Modified			179°

## How can we modify the refraction?

### How can we set the Power of Modified CYLINDER?

Enter measured value

If power of clinical astigmatism  $>$  measured cylinder

	SPHERE	CYLINDER	AXIS
Refraction		-1.75 D	
Measured		-0.75 D	
Modified		-0.75 D	179°

Clinical + Add  $\frac{1}{2}$  of the difference between clinical & measured

If power of clinical astigmatism  $<$  measured cylinder

	SPHERE	CYLINDER	AXIS
Refraction		-1.00 D	
Measured		-2.00 D	
Modified		-0.50 D	179°

## How can we modify the refraction?

### How can we set the Power of Modified SPHERE?

If power of clinical astigmatism  $>$  measured cylinder

	SPHERE	CYLINDER	AXIS
Refraction	-4.50 D	-1.75 D	
Measured		-0.75 D	
Modified	-5.00 D	-0.75 D	179°

In myopia: Clinical sphere +  $(1/2)$  of difference between clinical & measured cylinder power

In hyperopia: Clinical sphere -  $(1/2)$  of difference between clinical & measured cylinder power

## How can we modify the refraction?

### How can we set the Power of Modified SPHERE?

If power of clinical cylinder  $<$  measured cylinder

	SPHERE	CYLINDER	AXIS
Refraction	-3.00 D	-1.00 D	
Measured		-2.00 D	
Modified	-2.75 D	-1.50 D	179°

In myopia: Clinical sphere  $- (1/4)$  of difference between clinical & measured cylinder power

In hyperopia: Clinical sphere  $+ (1/4)$  of difference between clinical & measured cylinder power

## How can we modify the refraction?

Final confirmation step, which is the SE of the manifest Rx. Must be equal to the SE of the modified Rx.

### STEP 4

Confirm the Spherical Equivalents (SEQ) of the Manifest Refraction and Modified Refraction are the same.

	SPHERE	CYLINDER	AXIS	SEQ
Refraction	-3.00 D	-1.00 D		-3.50 D
Measured				
Modified	-2.75 D	-1.50 D		-3.50 D

@end, We were also able to connect the Oculyzer to Allegretto 400, with direct data cable? Like the WaveNet comes with EX500



**WaveNet™ Integrated Computer Network**  
Seamless and efficient data transfer



**THANK  
YOU**

