

Lo que nunca te contaron de la ortho-k

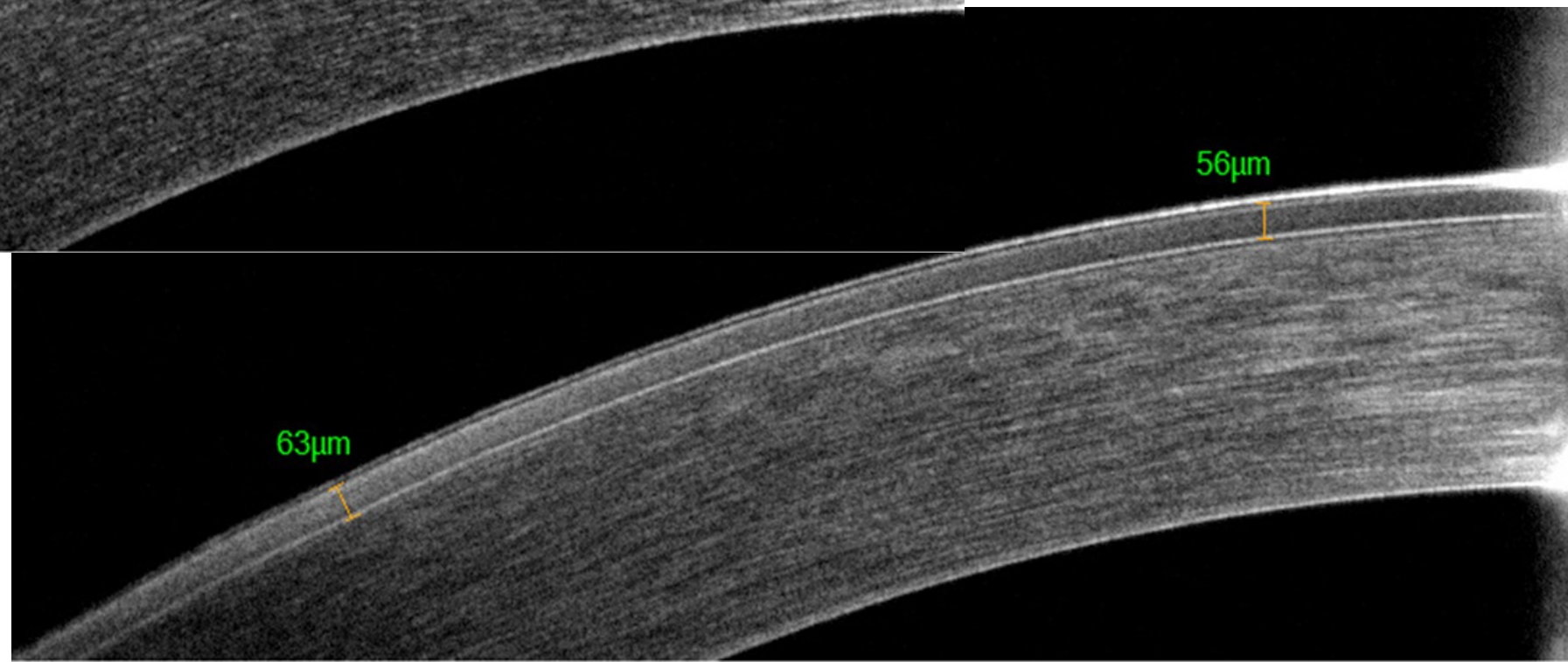
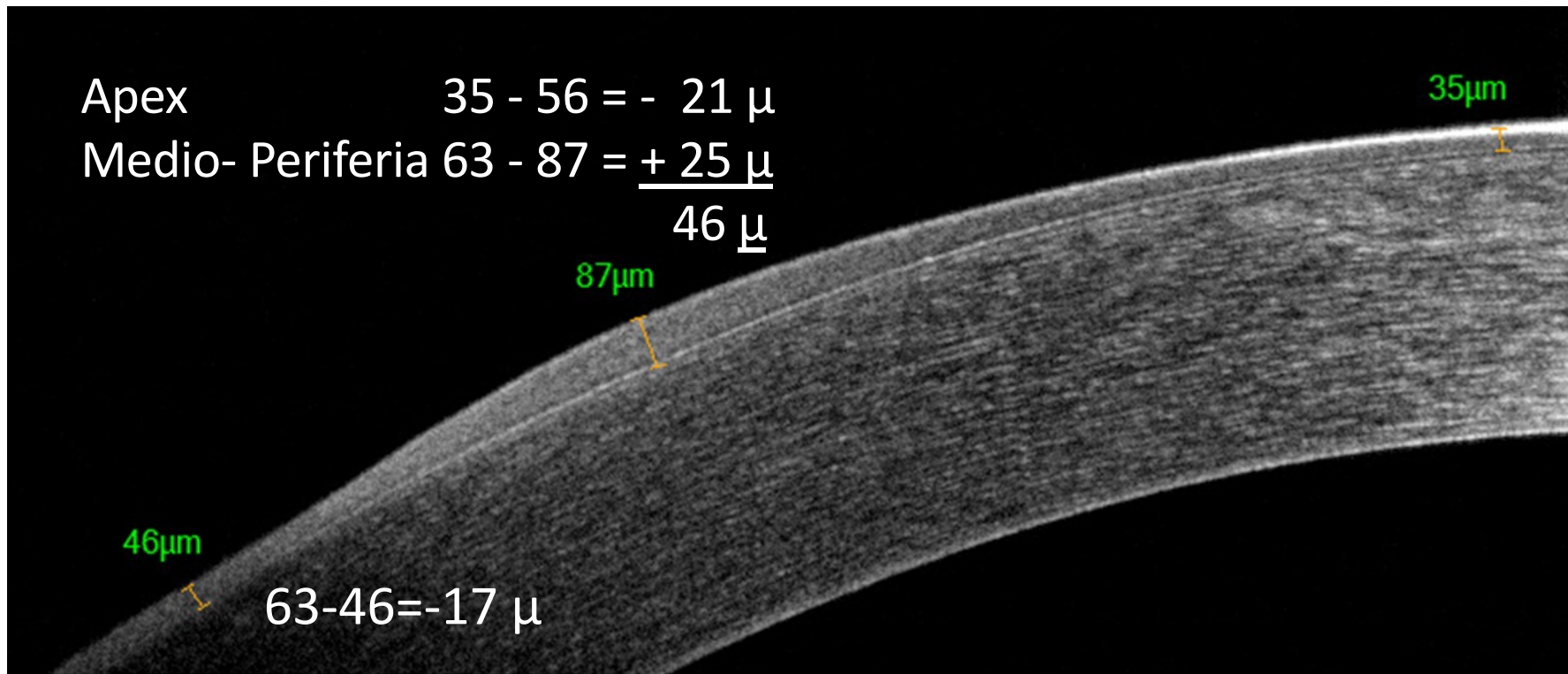
Jaume Paune, PhD.



1-Ni Aplastar, ni moldear...

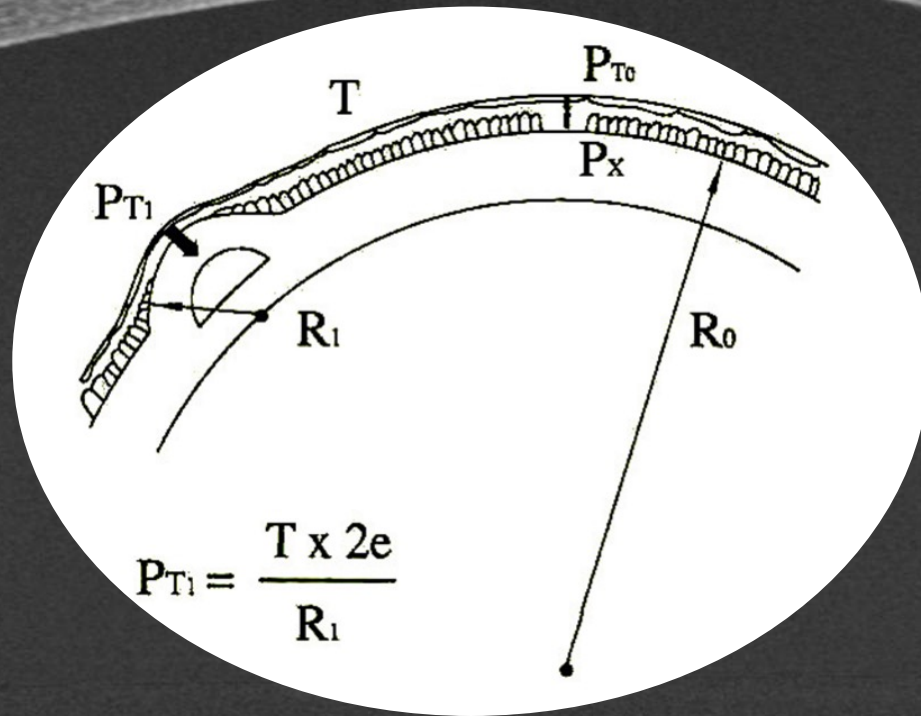
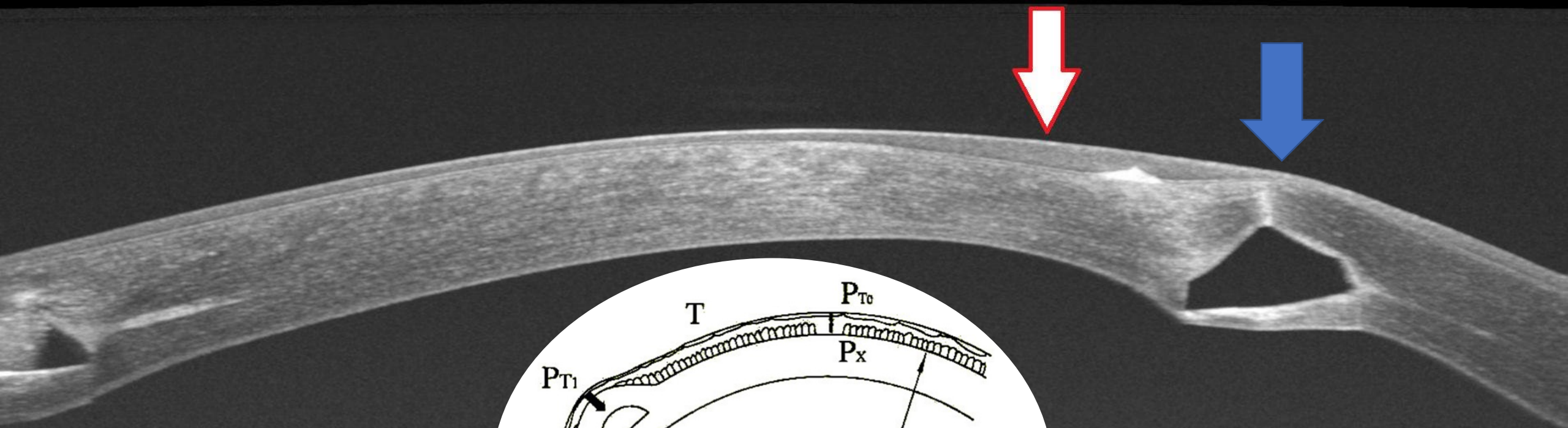


Jaume Paune Ortho-k Model for OK: Hypo and Hyperplasia



Cortesía de Juan Bolivar

Hipo e Hiperplasia epitelial



Hipoplasia e Hiperplasia epitelial

- Controlado por las fuerzas de cizallamiento, exfoliativas, del cierre del párpado superior.
- En el queratocono, a los lados del cono, el epitelio alcanza de 60 a 100 μm , compuesto por 7 a 12 capas de células.
- En casos más notables, el epitelio hiperplásico alcanza más de 20 células y 200 μm de grosor.

Brazilian Journal of Medical and Biological Research (2014) 47(6): 470-477, <http://dx.doi.org/10.1590/1414-431X20143519>
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Maintenance of the corneal epithelium is carried out by germinative cells of its basal stratum and not by presumed stem cells of the limbus

A. Haddad¹ and S.J. Faria-e-Sousa²

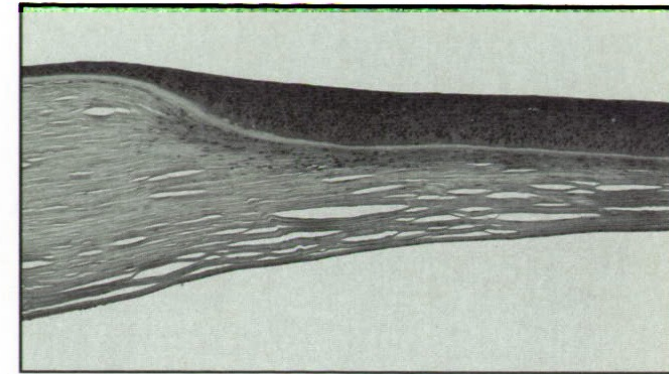


FIGURE 7: Chronic herpes simplex virus keratitis with severe focal stromal loss. Thickened epithelium roughly approximates the smooth anterior corneal curvature in an area of deep stromal loss. Bowman's membrane is seen beneath the CEH. Chronic inflammation persists in the anterior stroma (hematoxylin and eosin, original magnification $\times 50$).

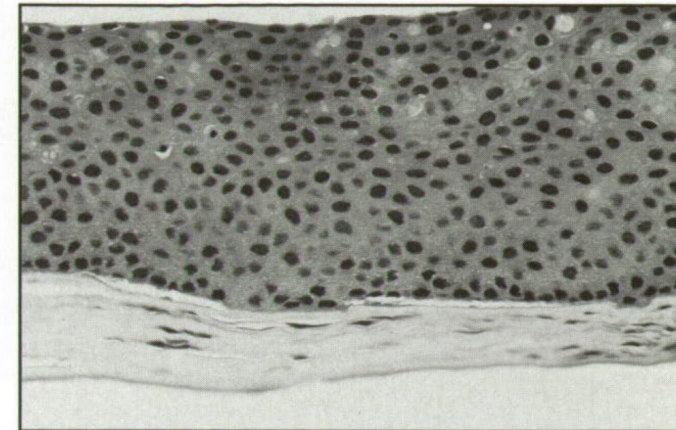


FIGURE 3: The keratoconus with severe stromal ectasia shown in Figure 2. Higher magnification shows that hyperplastic epithelium constitutes nearly 80% of the corneal thickness in the ectatic zone. Bowman's mem-

2- Control de Miopía con Ortho-k ó Ortho-k para Control de Myopia



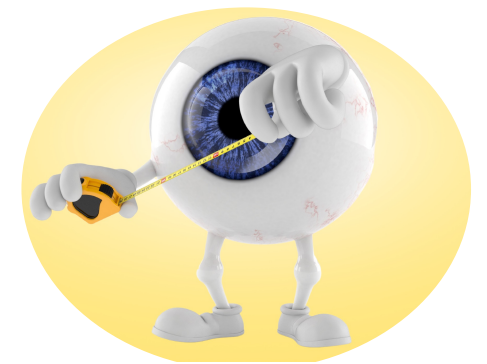
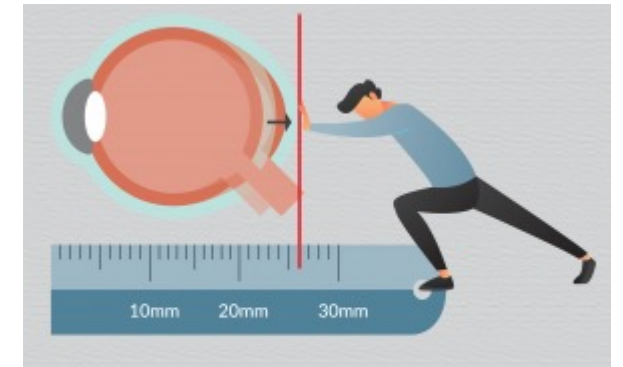
Feliz Aniversario Orthokeratology

Naciste en 1962

Fuiste creada para corregir vision
y no has cambiado nada

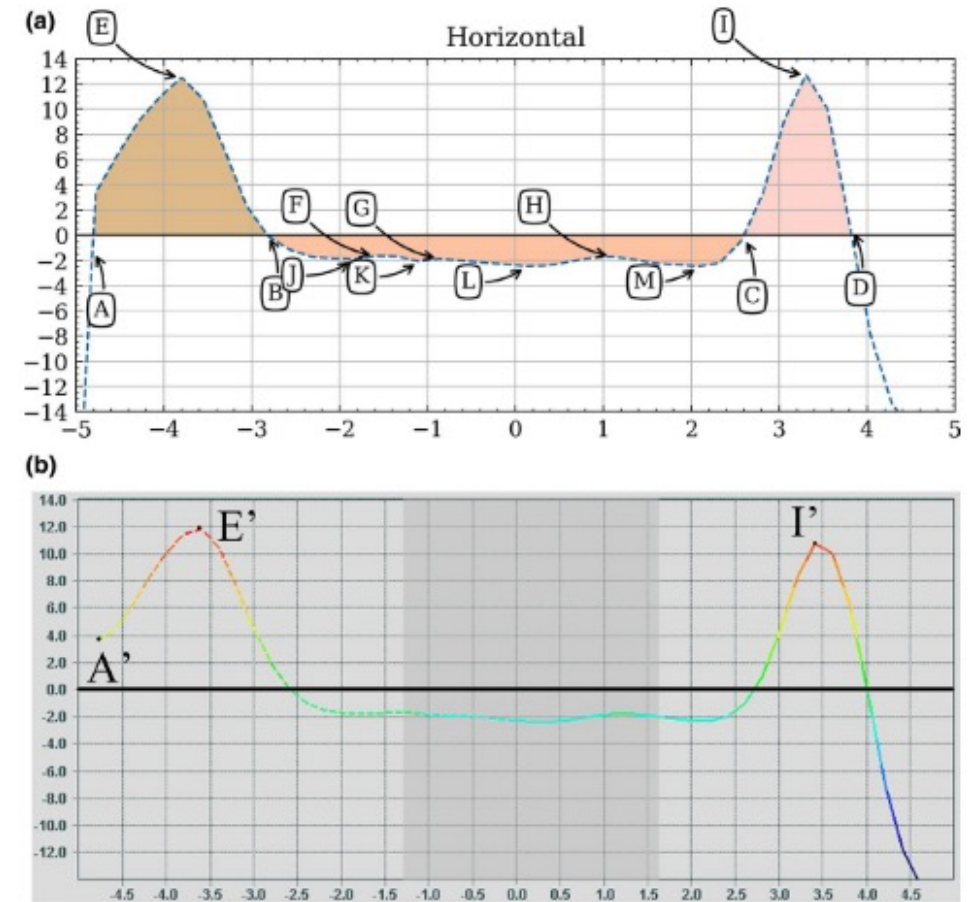
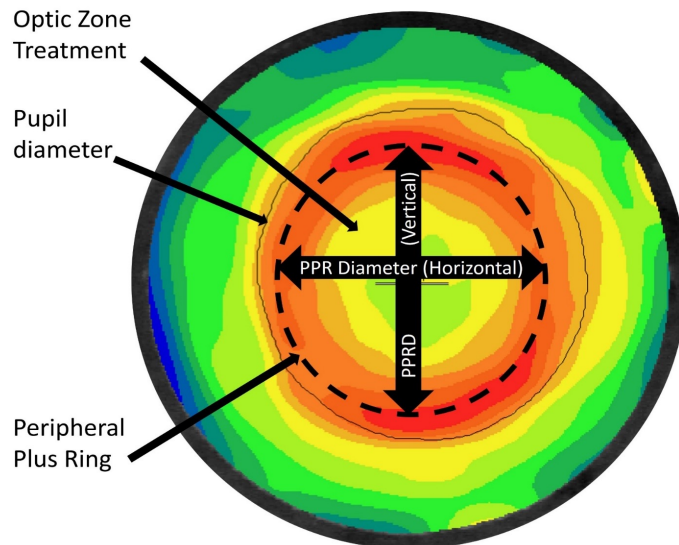
La Orto-k tiene efectos secundarios: *Frenar la Progresión de la miopía*

1. Se acepta un freno del 50% en Longitud Axial
2. Sabemos que es variable: Entre un 20 y un 100%
3. Depende de:
 - Edad
 - Miopía Inicial
 - Etnia
 - Baja/Media/Rapida Progresión
 - Y La Óptica: **Forma de la Zona Optica y Diametro**

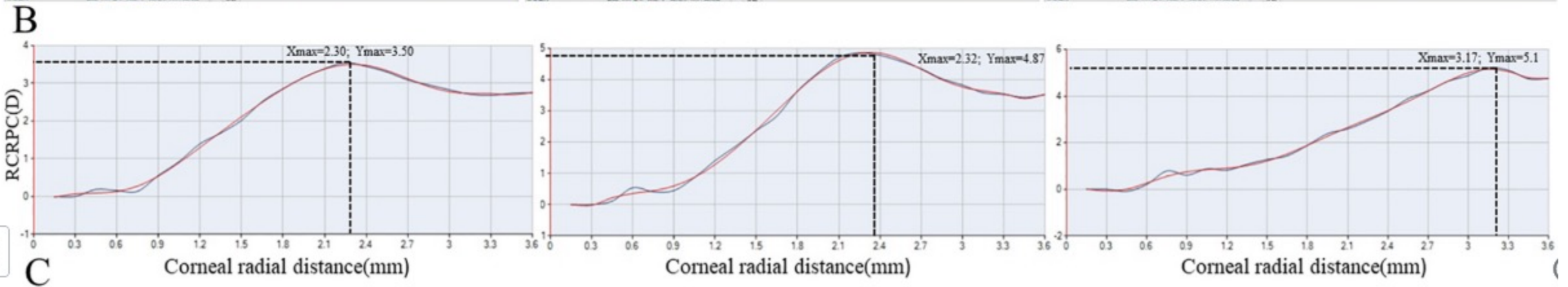
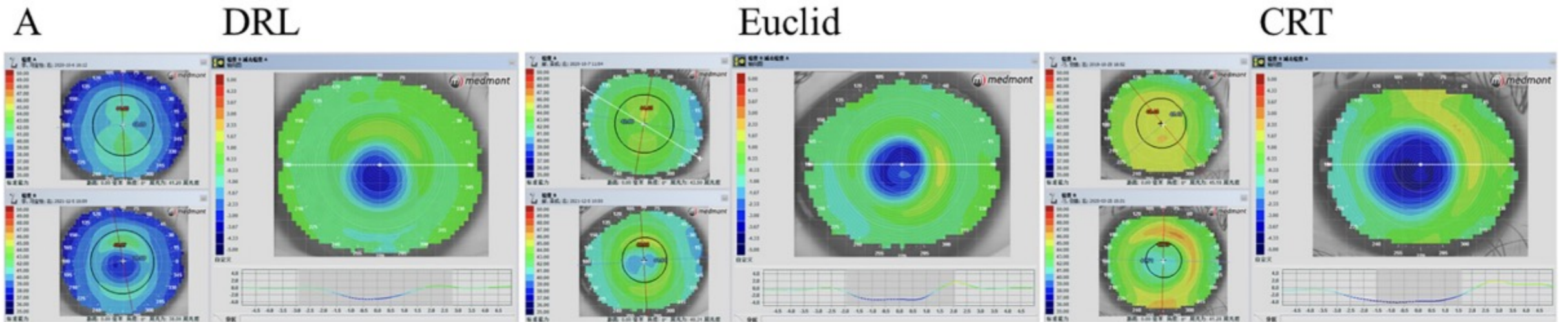


La zona Optica de Tratamiento funciona mejor:

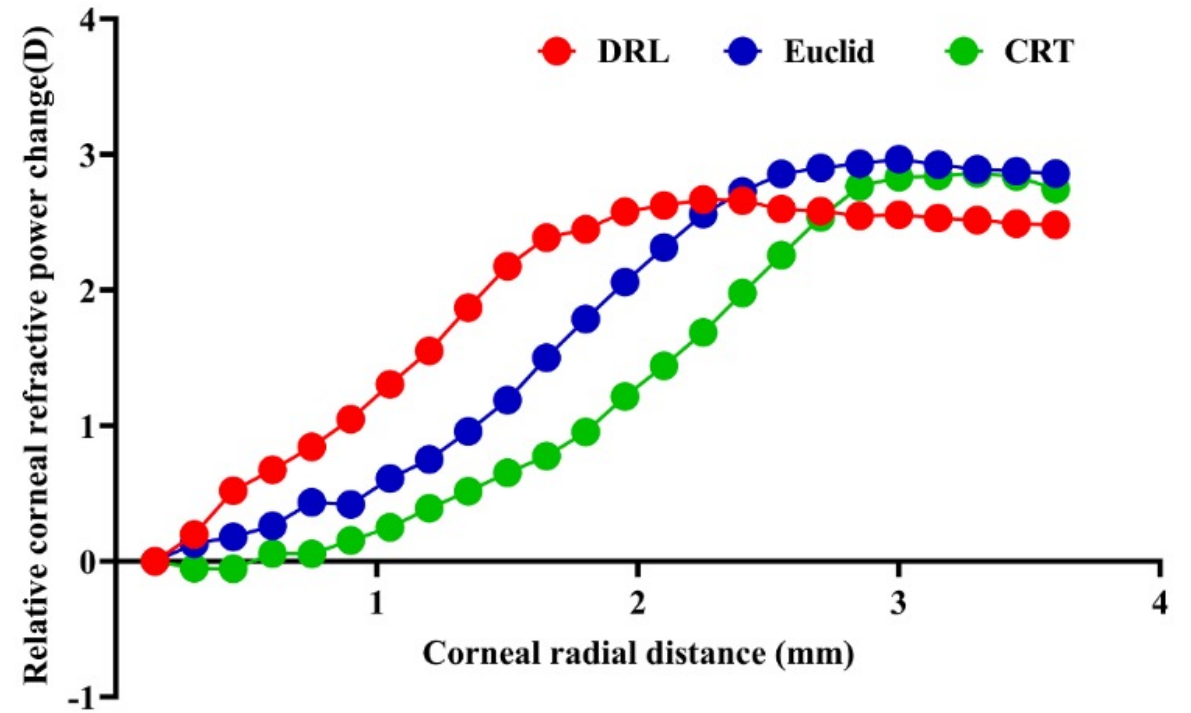
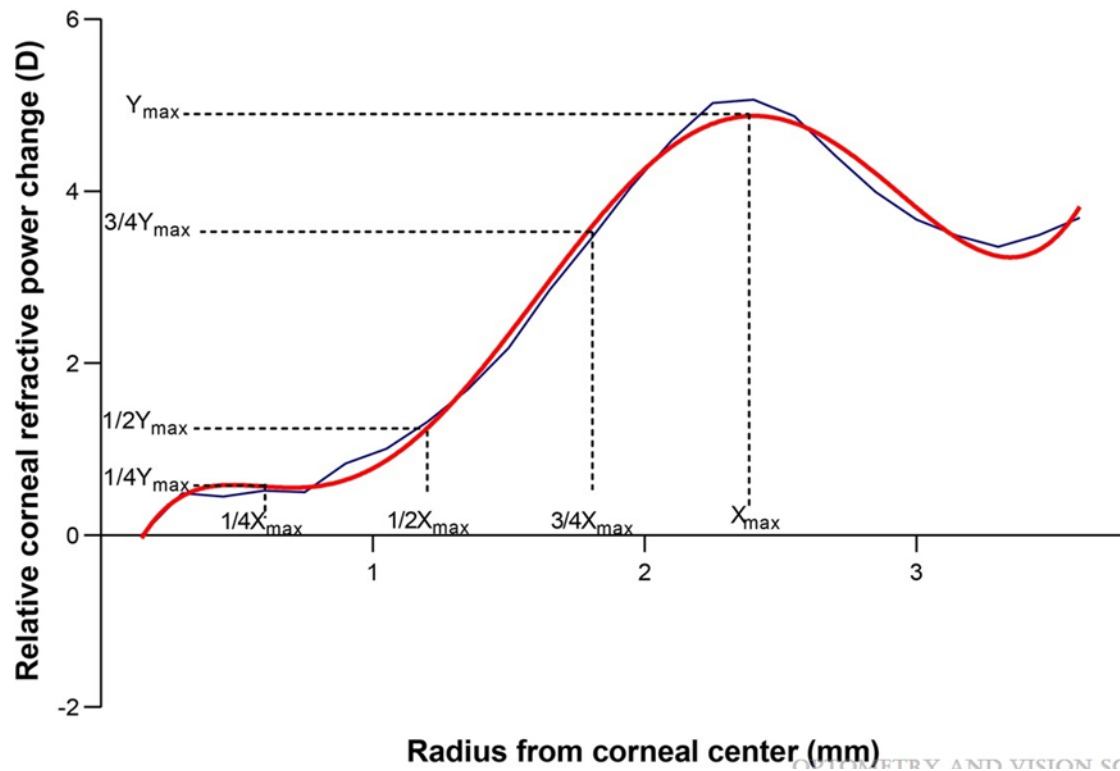
1. Descentrada
2. Pequeña (en la zona pupilar)
3. Asferica (Gradient Power)



Distribucion de la potencia corneal según el diseño



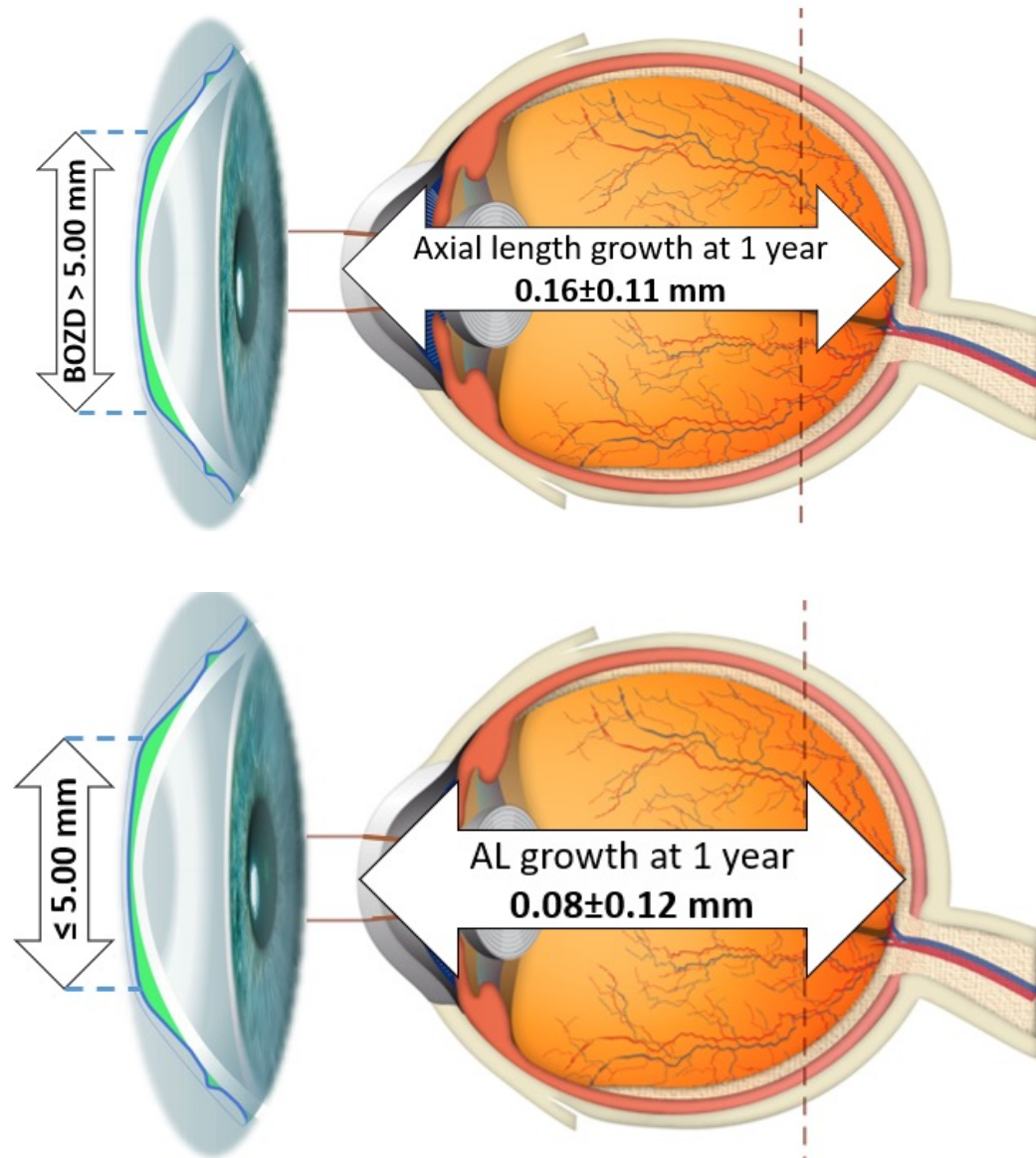
Progresión de Potencia Corneal Relativa



ZHANG, Zhe, et al. The effect of corneal power distribution on axial elongation in children using three different orthokeratology lens designs. *Contact Lens and Anterior Eye*, 2022,

Zhang, Zhe et al. The Effect of Lens Design on Corneal Power Distribution in Orthokeratology. *Optom Vis Sci*, 99(4):363-371, April 2022.

Cumulative Absolute Reduction in Axial Elongation (CARE)



Grupo control gafas monofocal:
 0.28 ± 0.17^1 (0.37^2 ; 0.24^3)

BOZD > 5,00 mm = 0,12 mm/year
BOZD \leq 5,00 mm = 0,20 mm/year

% Control de miopía:
BOZD > 5,00 mm = 42%
BOZD \leq 5,00 mm = **71%**

Cumulative Absolute Reduction in Axial Elongation (CARE)

Grupo control: $0.28 \pm 0.17^*$

Sin influencia (NE)= 0,11 mm/year

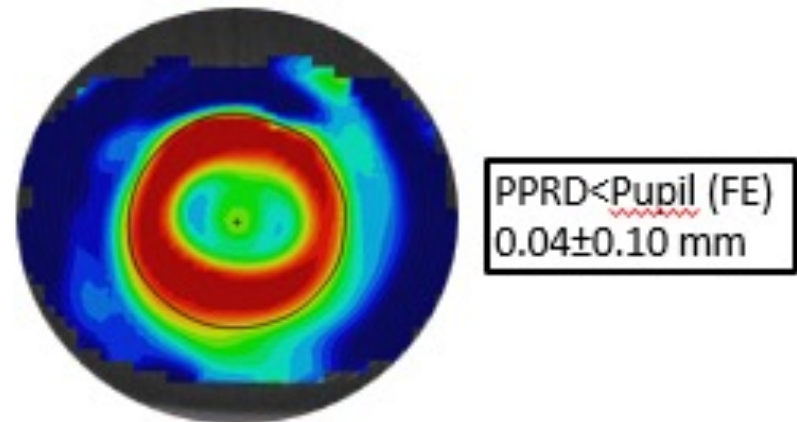
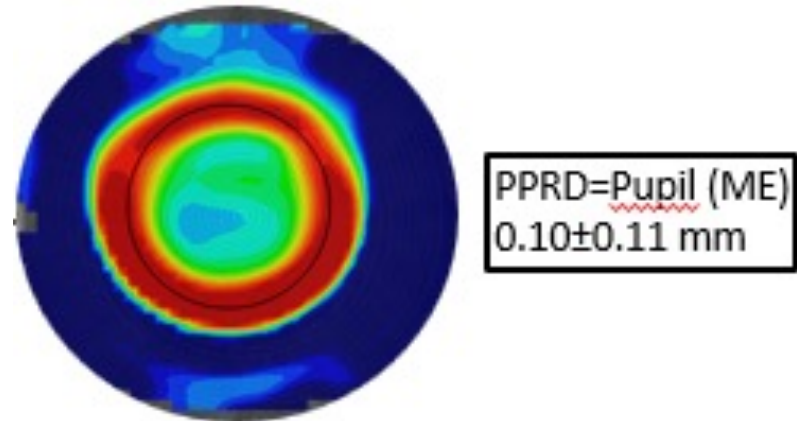
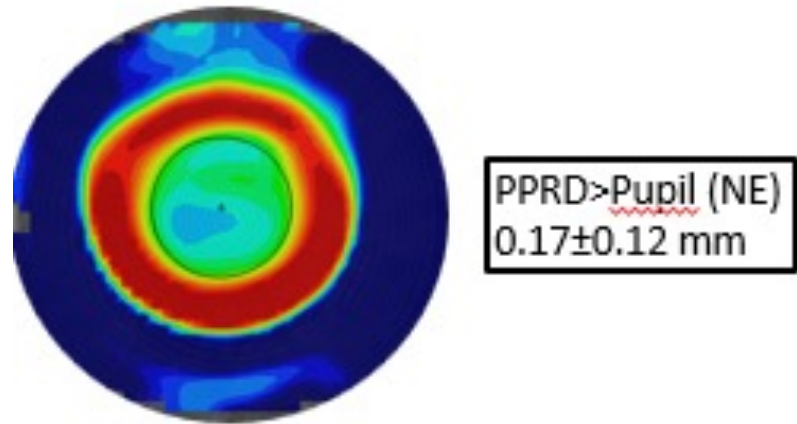
Influencia media (ME) 0,18 mm/year

Influencia total (FE)= 0,24 mm/year

Sin influencia (NE)= 39%

Influencia media (ME)= 64%

Influencia total (FE)= 85%



*Pauné J, (2015)

Tamaño de la zona y asfericidad

(a)

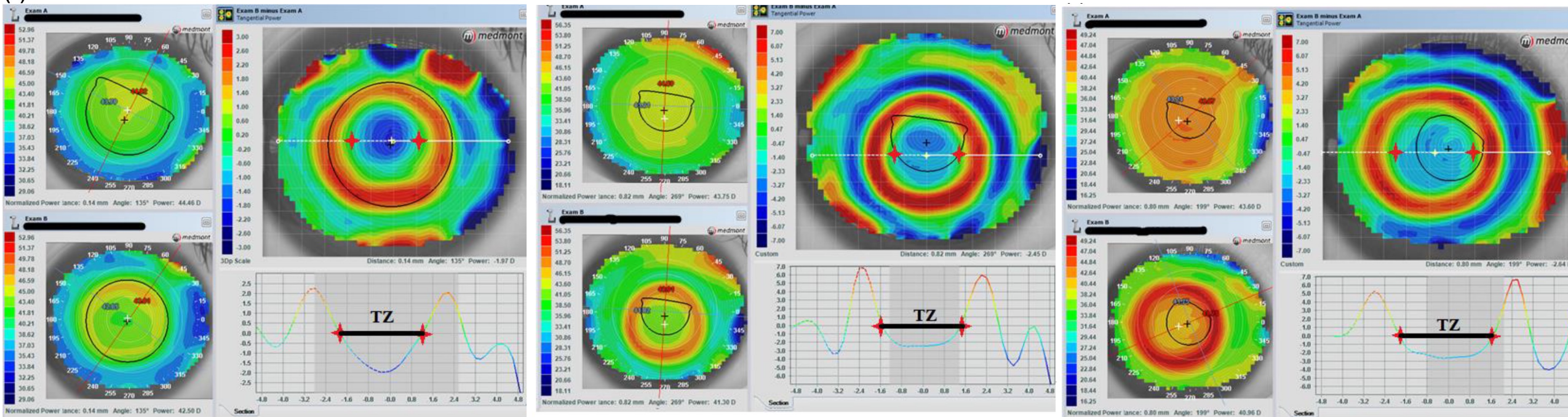
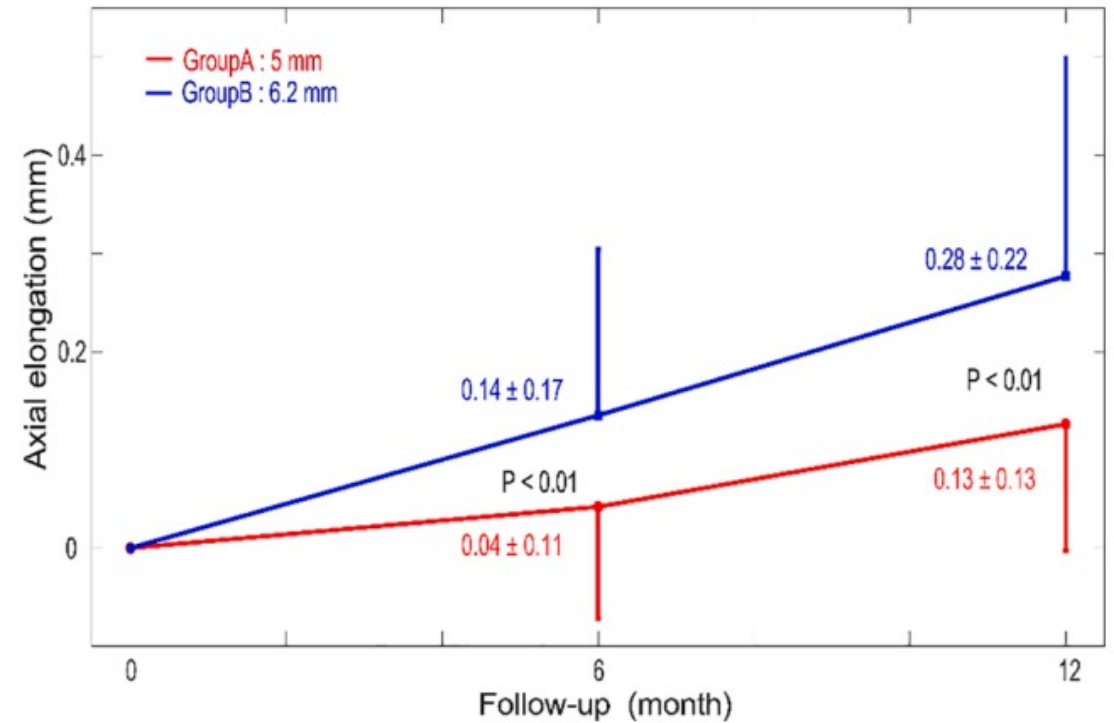
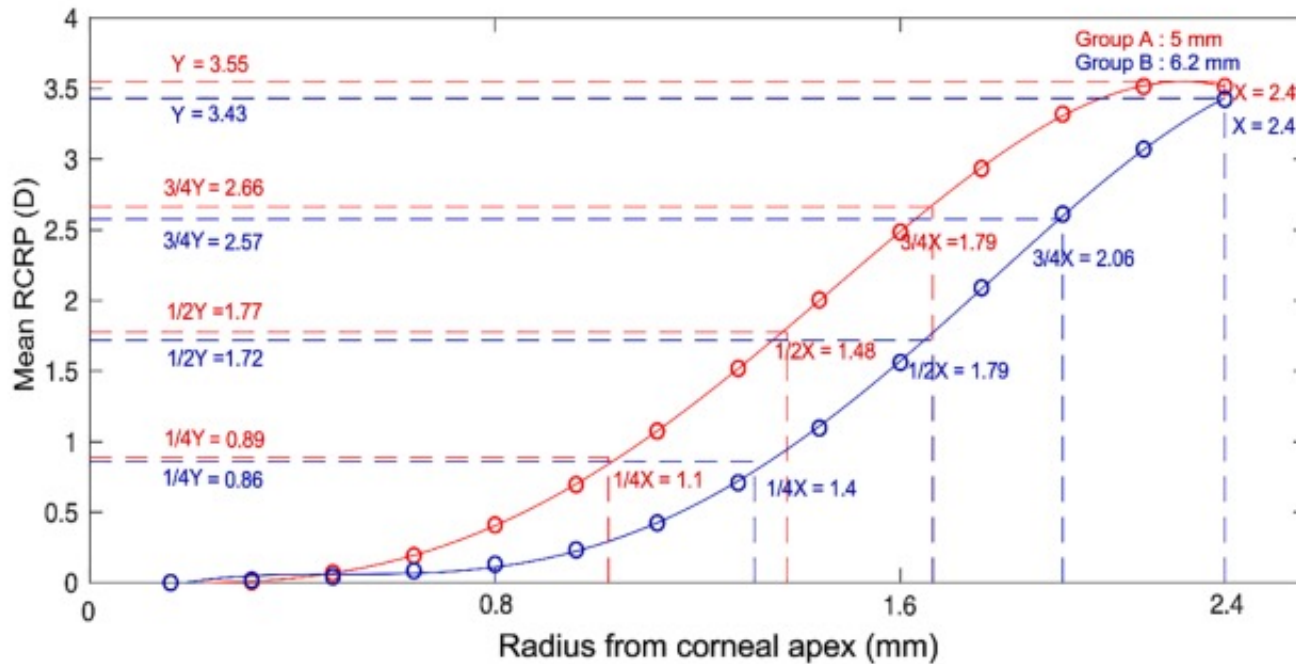


Fig. 2. Mean horizontal and vertical treatment zone diameter after 7 nights of overnight wear of Control and Test orthokeratology lenses (error bars represent standard deviation of the mean).

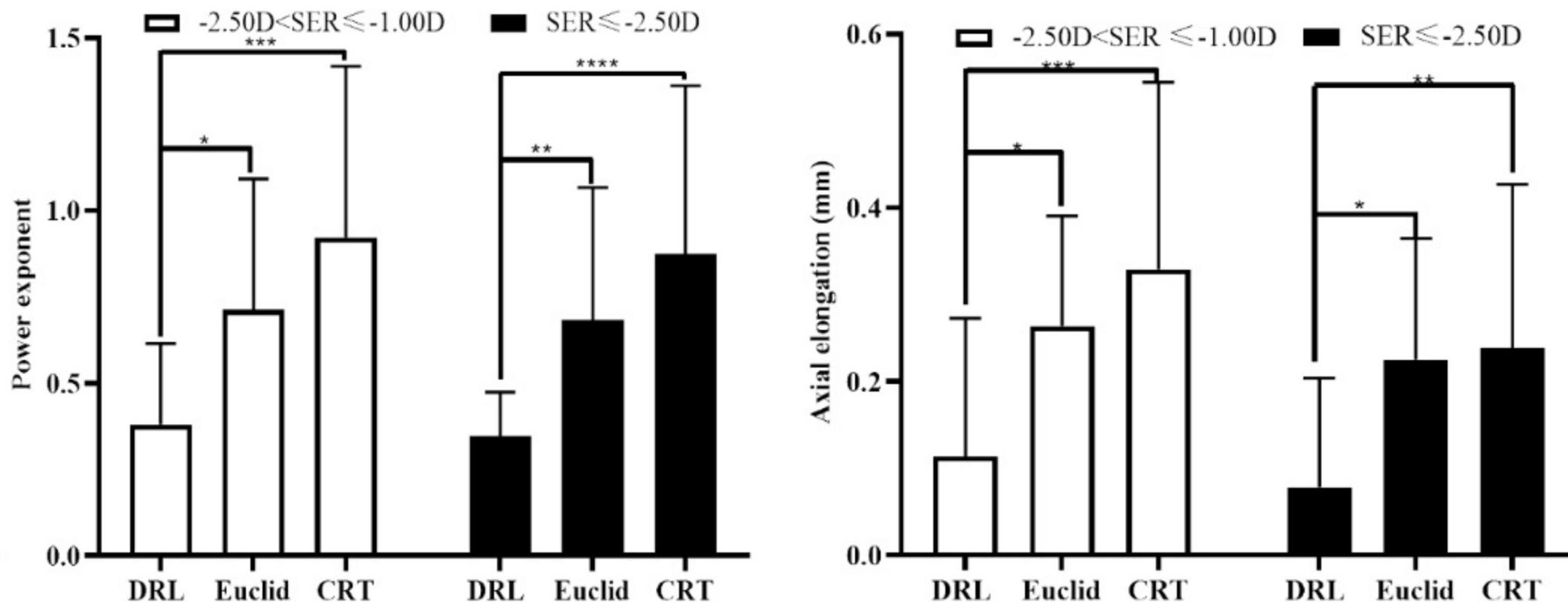
Guo B, Cheung SW, Kojima R, Cho P. One-year results of the Variation of Orthokeratology Lens Treatment Zone (VOLTZ) Study: a prospective randomised clinical trial. *Ophthalmic Physiol Opt.* 2021 Jul;41(4):702-714

Resultados



Li N, et al. The effect of back optic zone diameter on relative corneal refractive power distribution and corneal higher-order aberrations in orthokeratology. *Cont Lens Anterior Eye*. 2022 Sep 7:101755.

Comparación de eficacia entre diseños




Zhang Z, et al. The effect of corneal power distribution on axial elongation in children using three different orthokeratology lens designs. *Cont Lens Anterior Eye*. 2022 Aug 22:101749

El Cambio de paradigma



1-Las LC de OK actuales son para Corrección de la Visión, y cómo efecto secundario frenan la miopía.



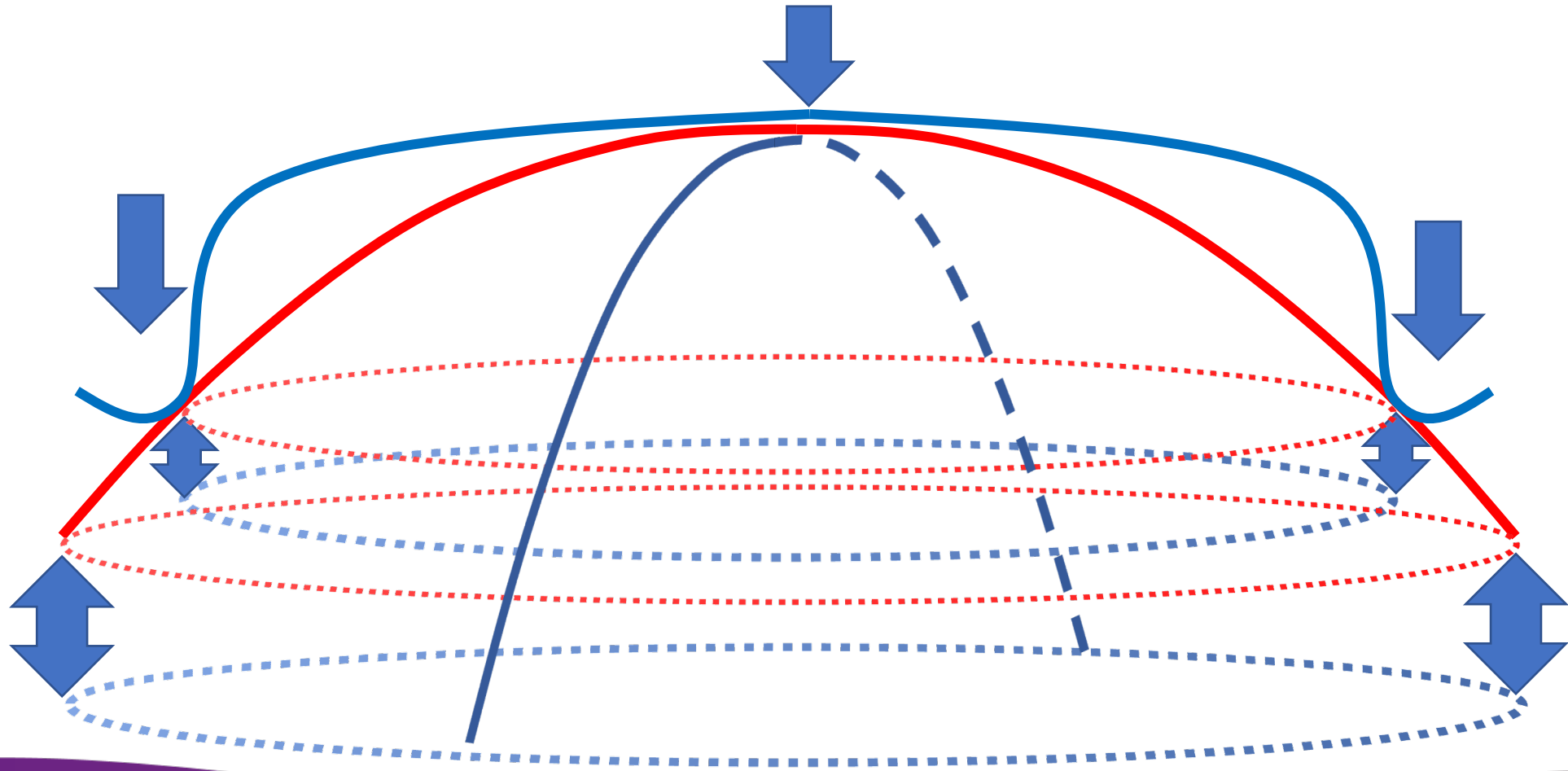
2-Los nuevos diseños son para el cuidado de la miopía y cómo efecto secundario corrigen la visión.

3-Astigmatismo

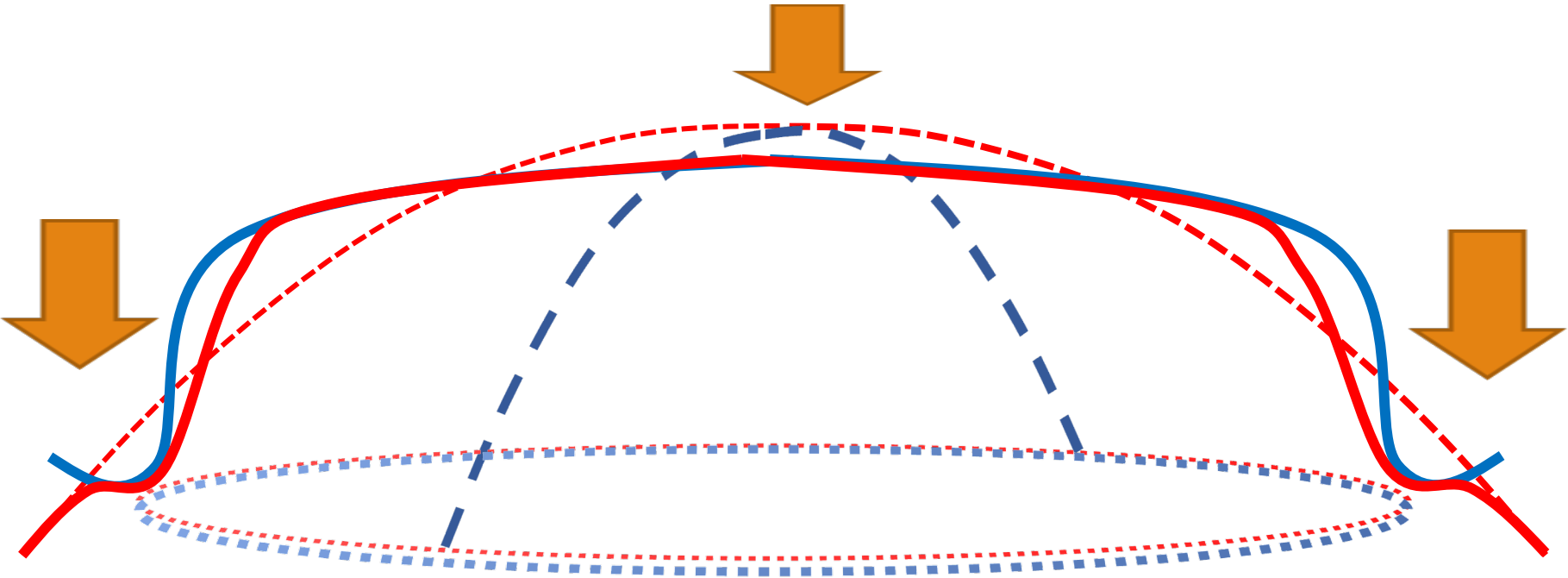
*“Se corrigen mejor astigmatismos horizontales
Los oblicuos o internos no son posibles”*



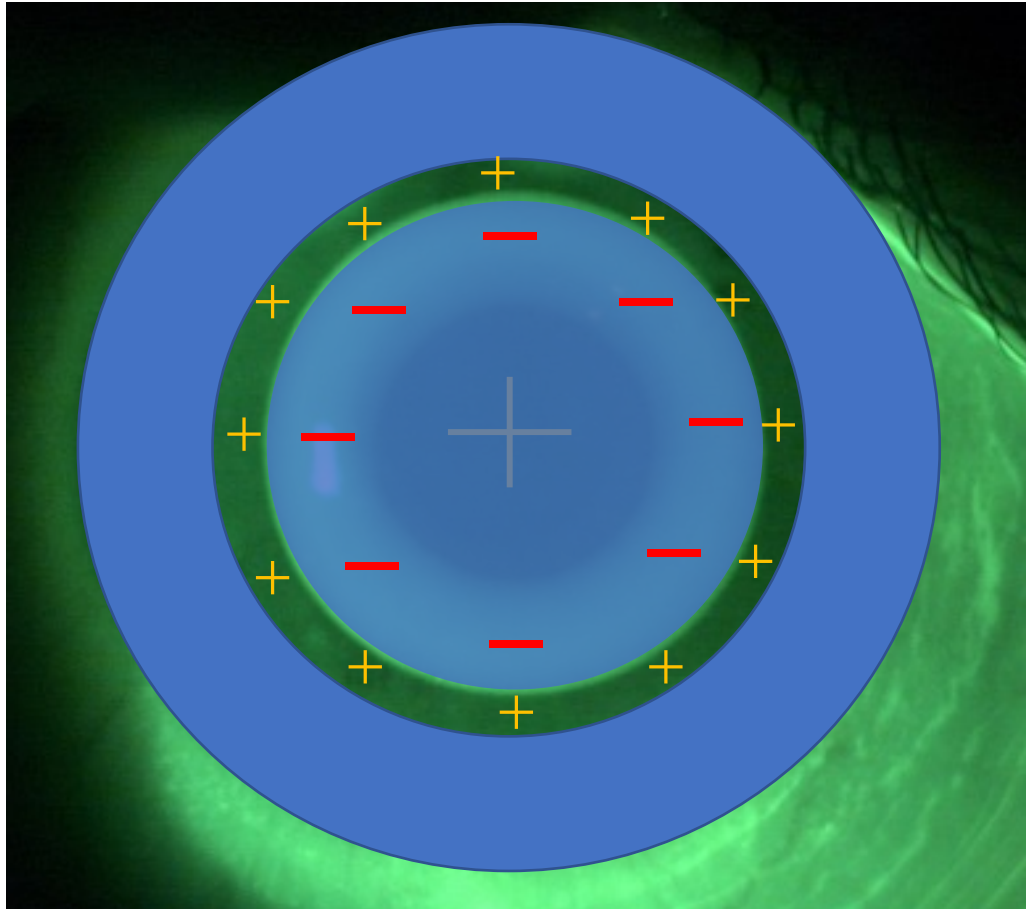
Los límites de lente esferica en cornea tórica



Los límites de lente esferica en cornea tórica

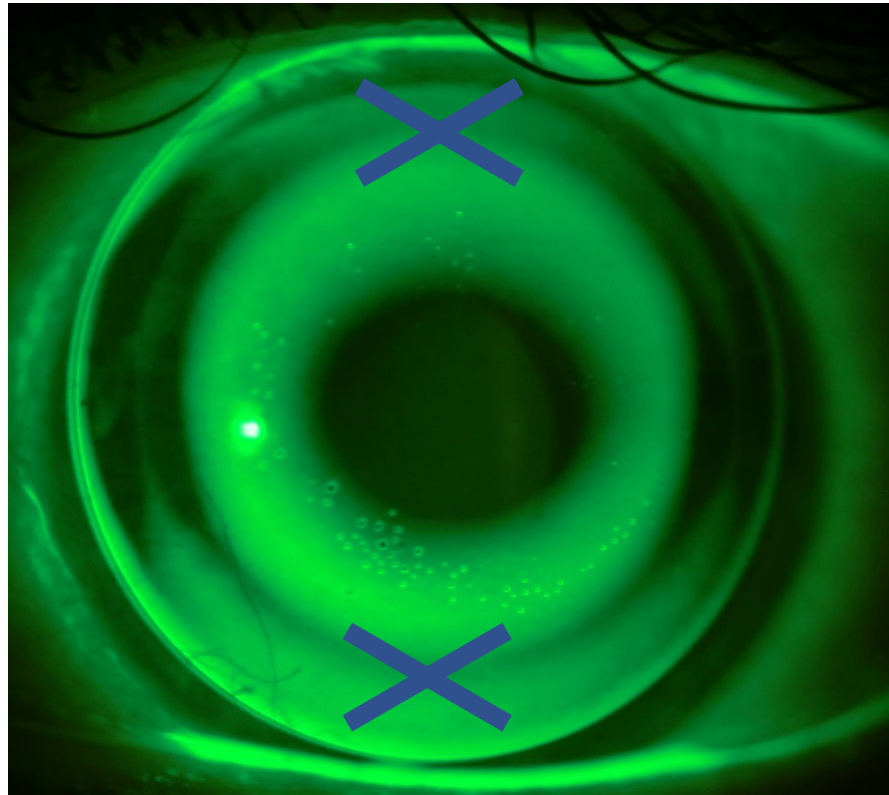
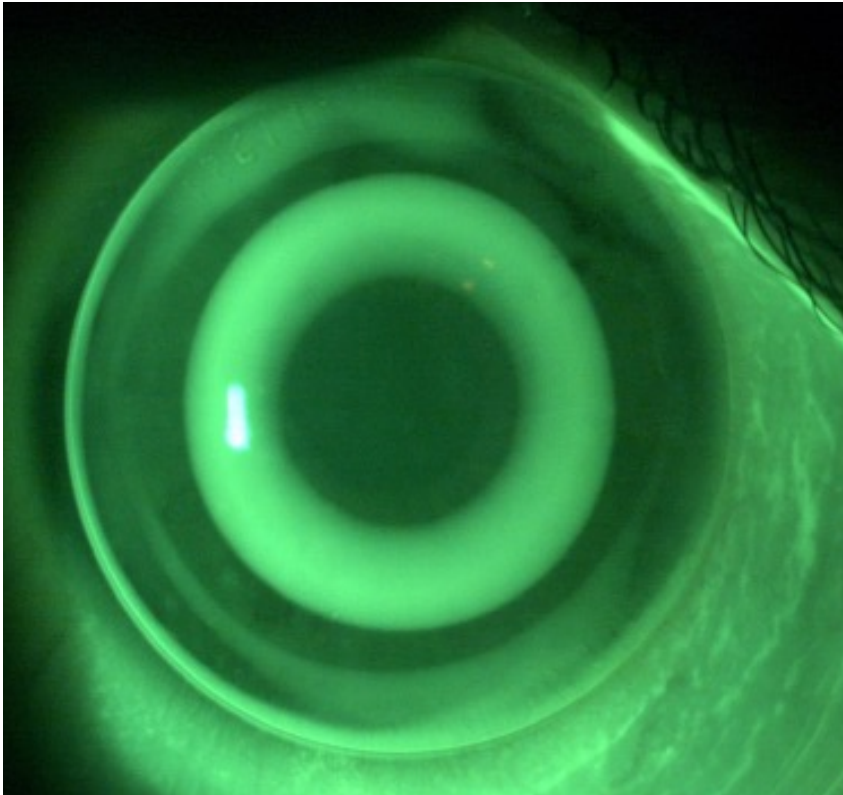


Los límites de lente esferica en cornea tórica



Controlar la zona de sellado

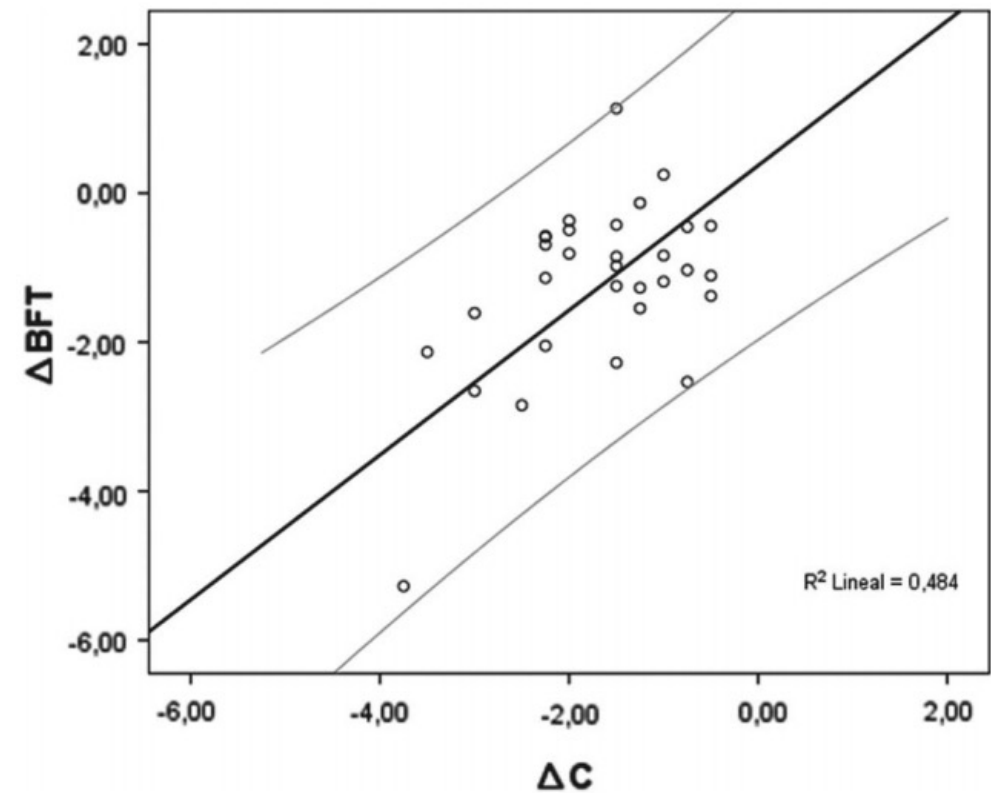
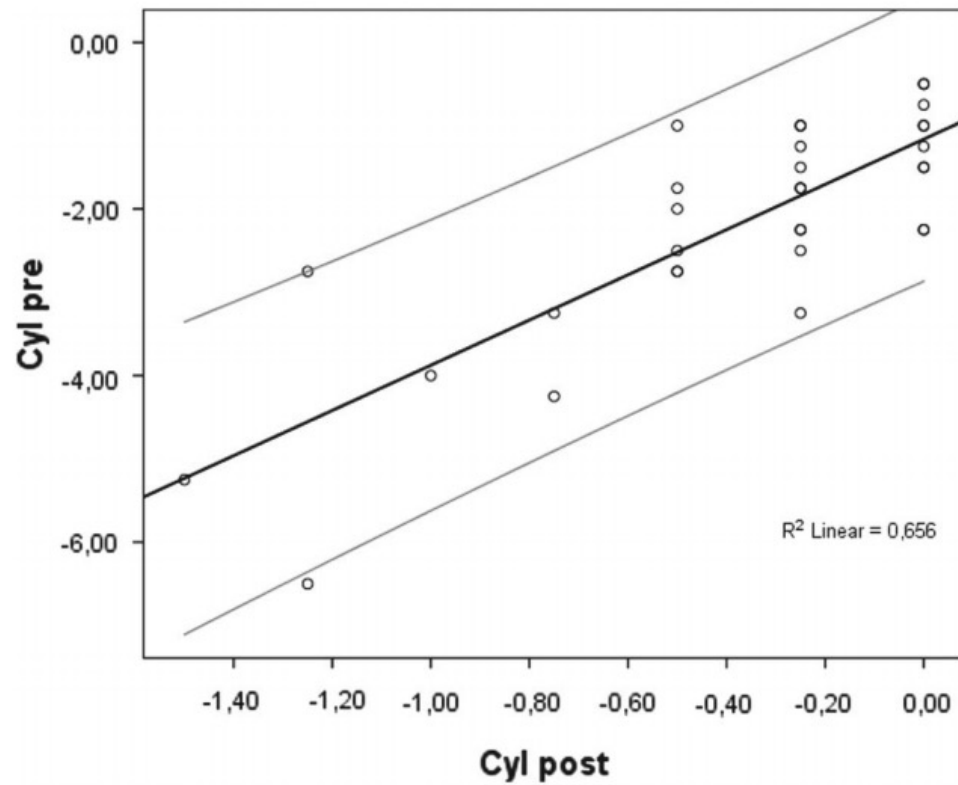
Zona de sellado



Los
límites de
lente
tórica



Una zona óptica esférica corrige solo un 85% del astigmatismo refractivo



El diseño óptico es tórico en todas las curvas. Incluida la zona óptica

- **Radio meridiano plano =**
- Keratometria plano + Esféra + Factor de compresión
- **Radio en meridano curvo =**
- Keratometria plano + Esféra + Factor de compresión

Objetivo: Corrección total del astigmatismo y la esfera

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Jaume Paune, PhD.

