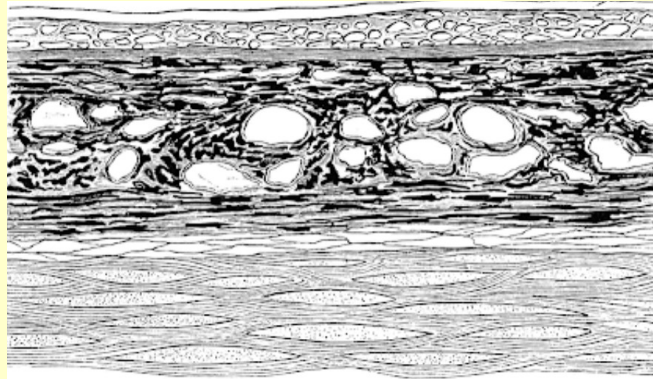


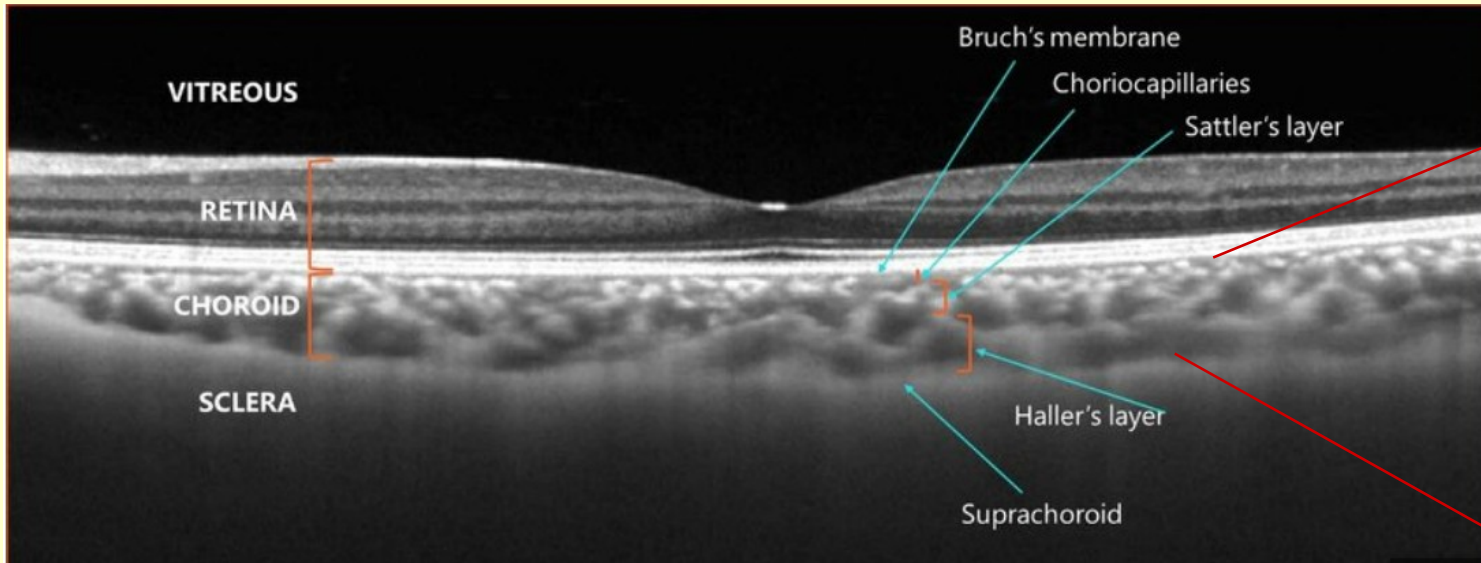
Choroidal thickness measurements: challenges in clinical practices



Summary

- The context: choroidal thickness measurements in previous works
- Open questions and our goals
- Our work: the first "traditional" manual method
- Second semi-automatic method: challenges and advantages
- Comparison between the two methods (preliminary results)
- Measuring CT variations pre and post the near task
- Future perspectives

The context

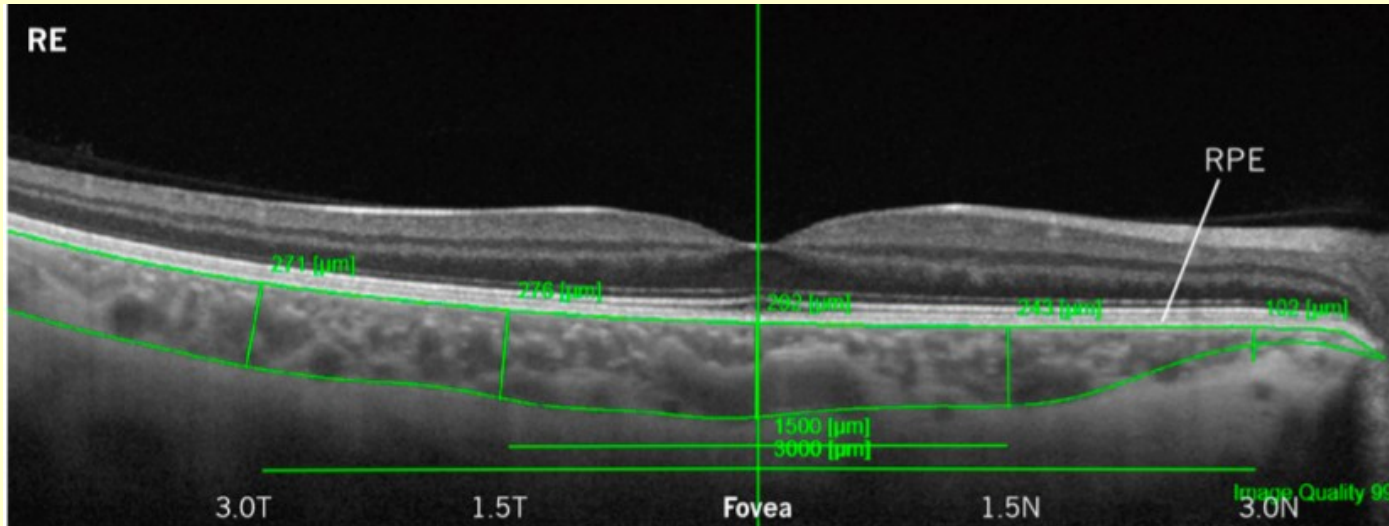


**EPR/choroid
interface**

**CSI/chorioscleral
interface**

Previous works

High prevalence of manual methods



10 subjects

18 - 35 yrs

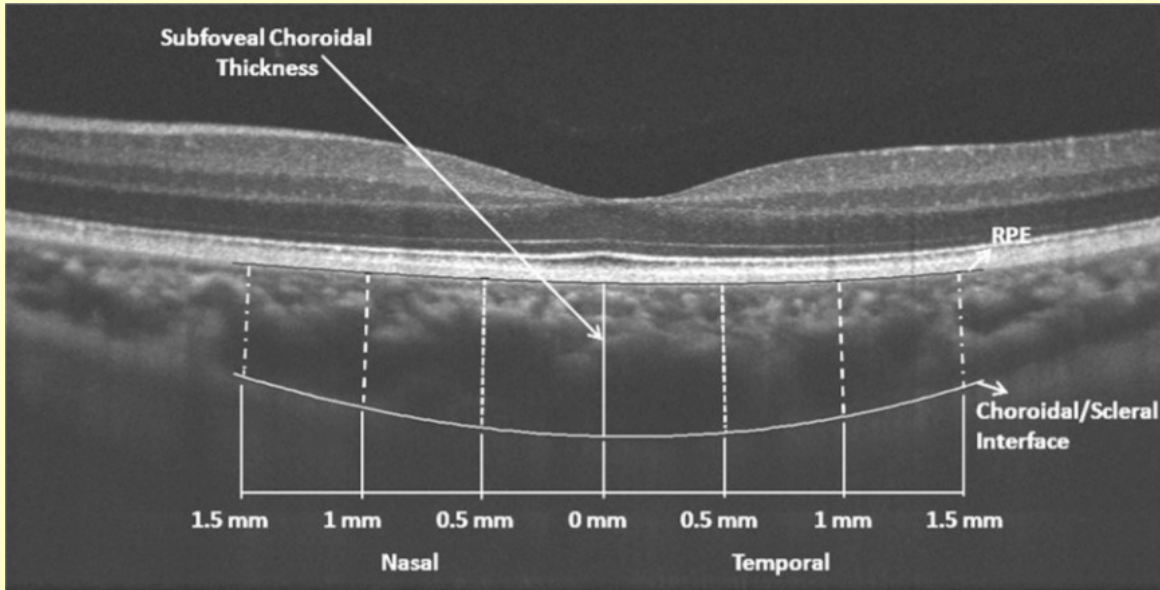
EDI - OCT

*MANUAL with built-in
software*

A. Amorim de Sousa et al. 2023

Previous works

High prevalence of manual methods



13 subjects

18 - 30 yrs

SD- OCT OPTOPOL

MANUAL with

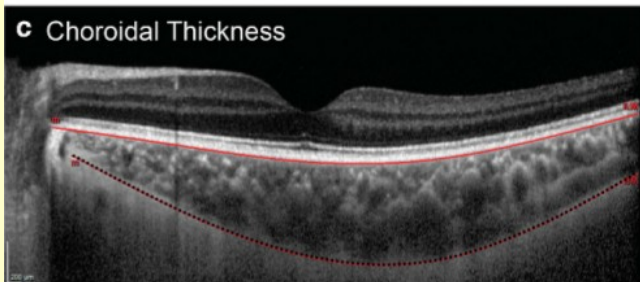
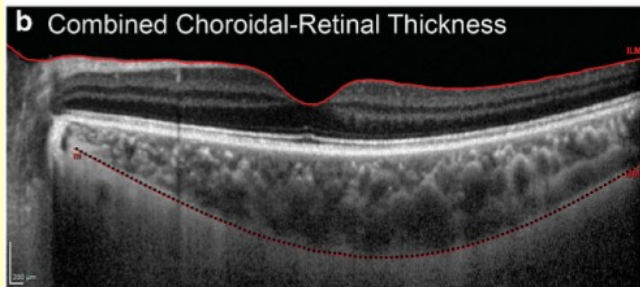
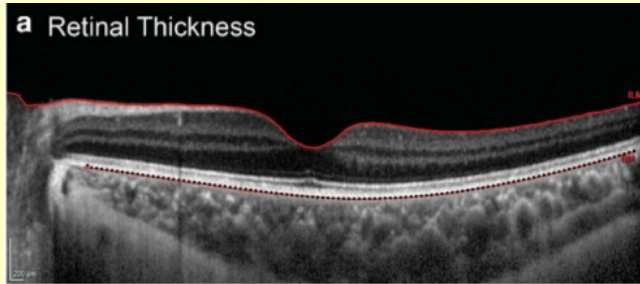
'custom-written'

software

R. Chakraborty et al. 2012

Previous works

High prevalence of manual methods



100 subjects

21 - 33 yrs

EDI-SD- OCT

Heidelberg

MANUAL adjustment

of

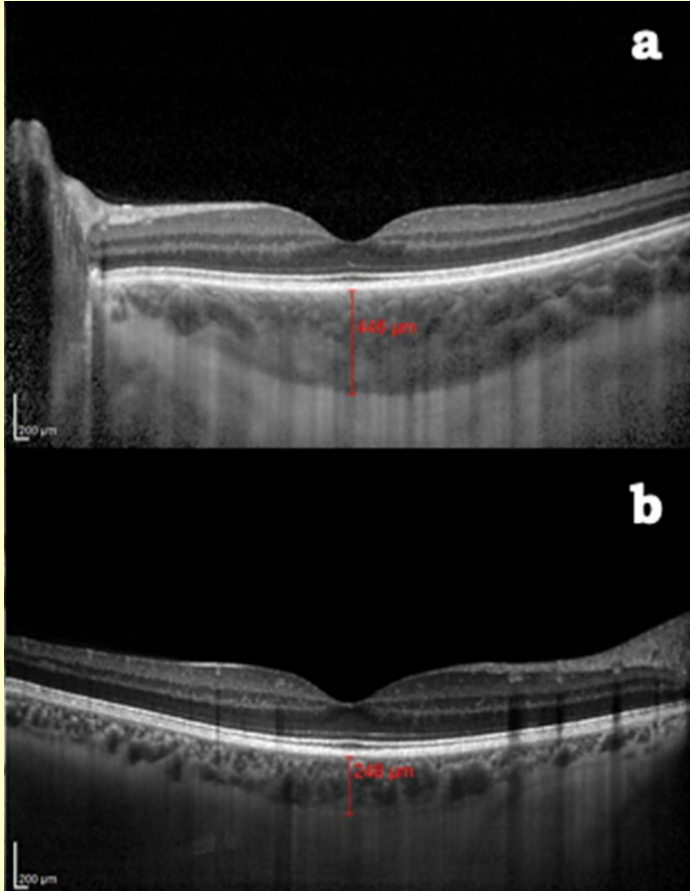
inferior border

CT = TOTAL THICKNESS - RT

KX. Cheong et al. 2018

Previous works

High prevalence of manual methods



74 celiac

67 healthy

EDI-SD- OCT

Heidelberg

MANUAL

with built-in

software

M. De Bernardo et al. 2021

Open questions and our goals



- Not always repeatable method
- Very time consuming
- Operator biases
- Measurements: sub-fovea or vicinities
- CT variations close to resolution

- Effective, reliable, repeatable method
- Less time consuming
- Less operator biases
- Measurements over wide range (periphery)
- Comparison between pre and post near task

The manual 'traditional' method

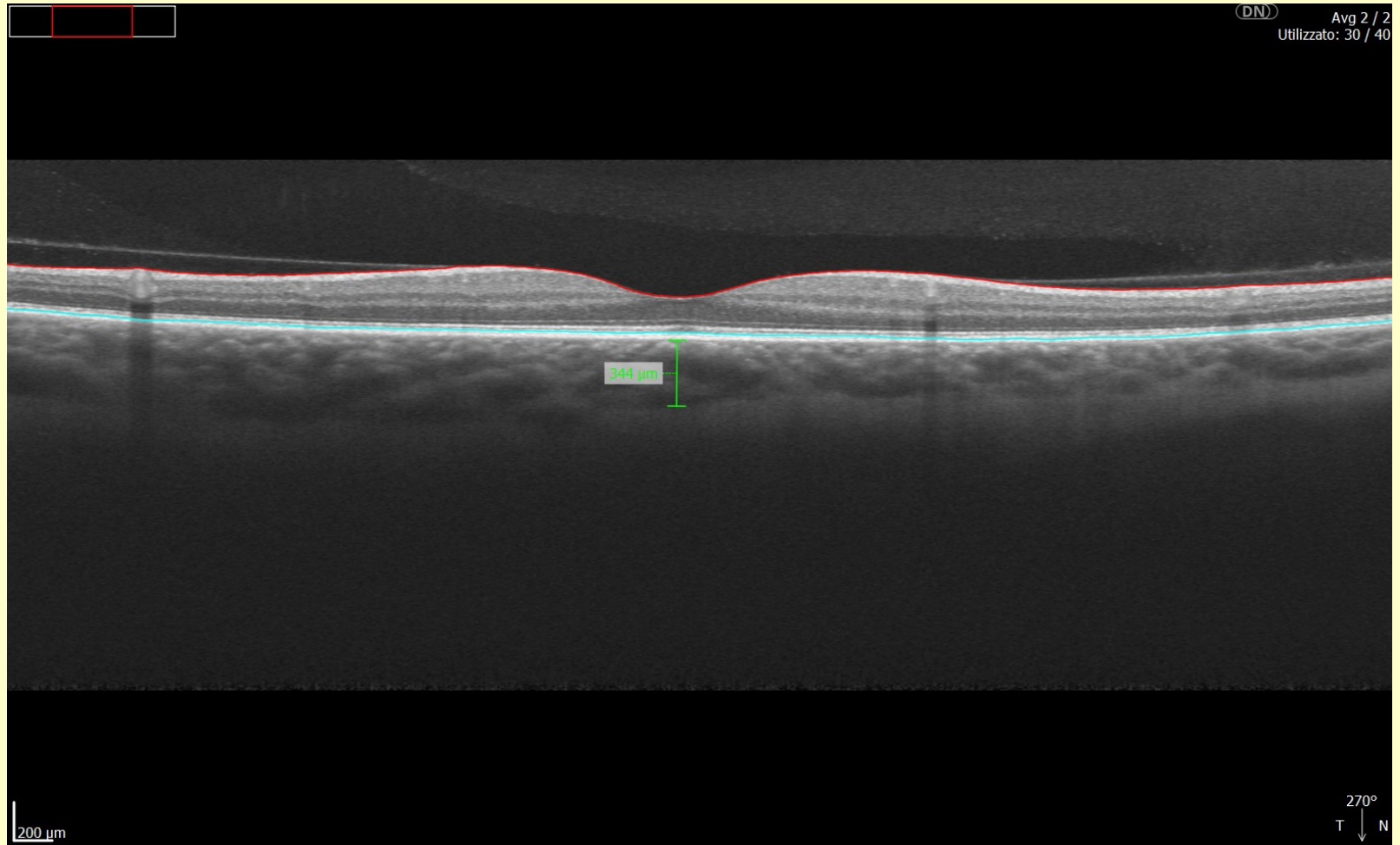
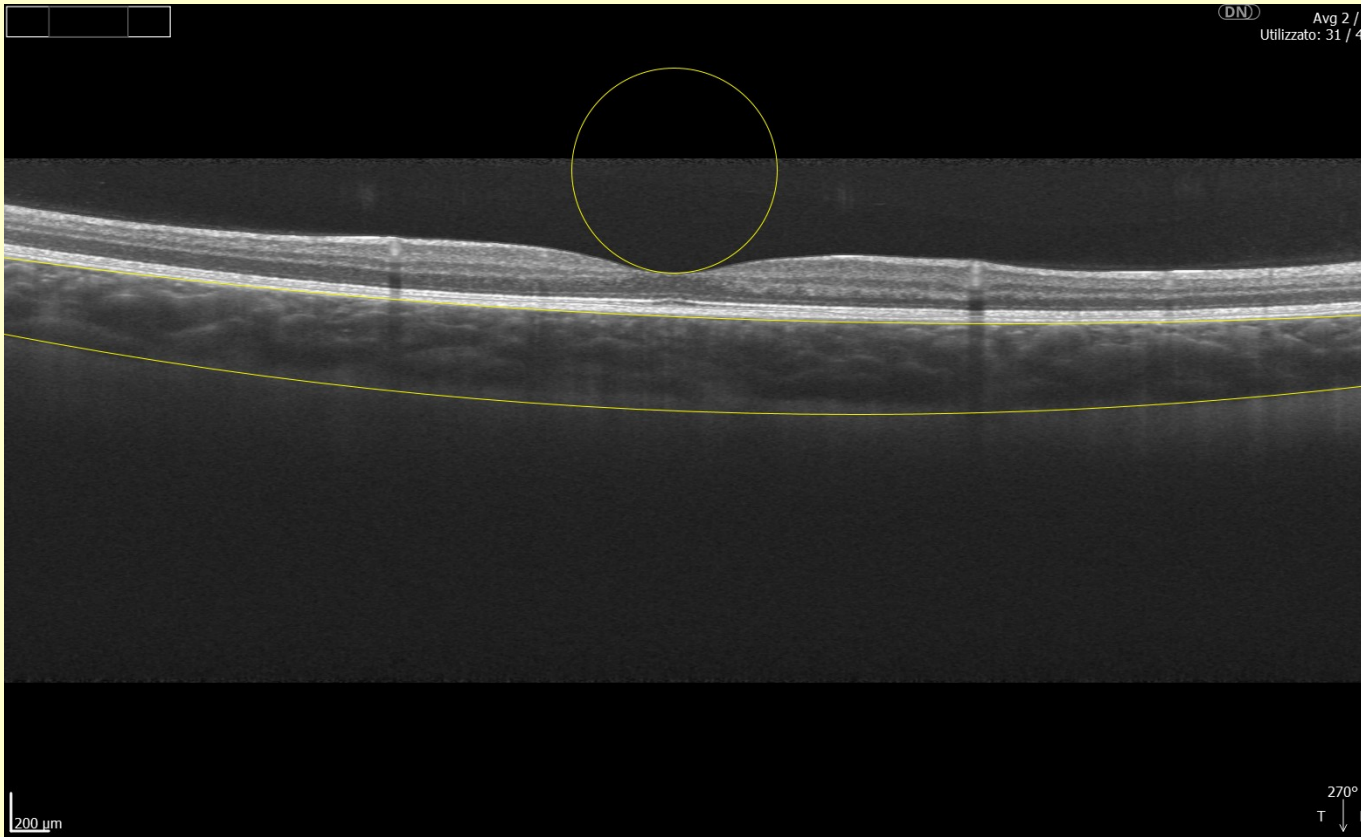
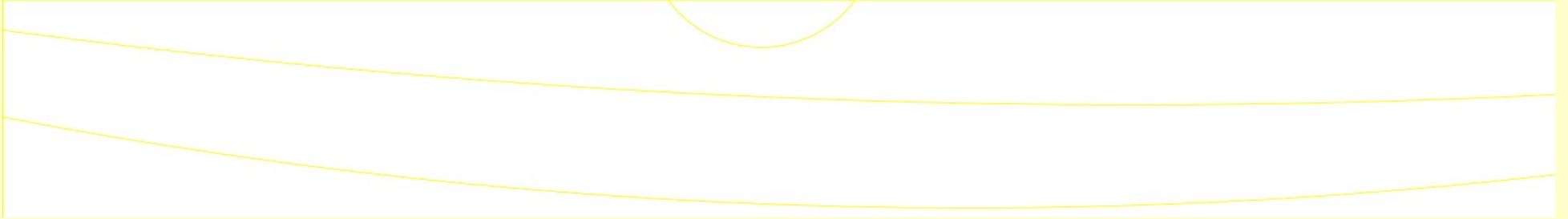


Image J semi-automatic method

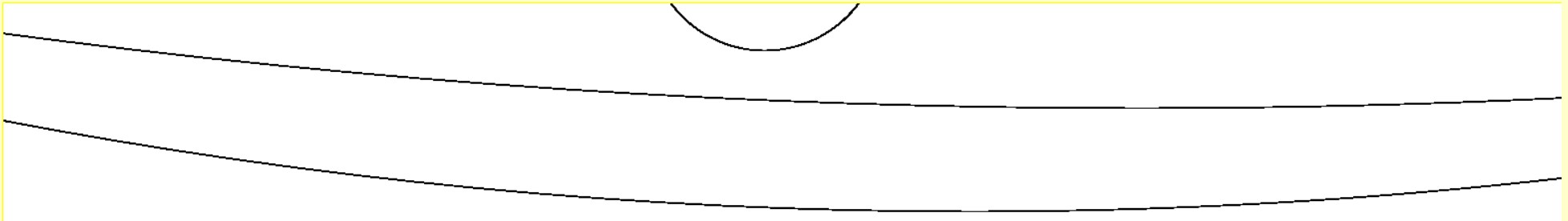


*Fitting the
Retinal center
Bruch's membrane
and
Chorio-scleral
interface*

Image J semi-automatic method

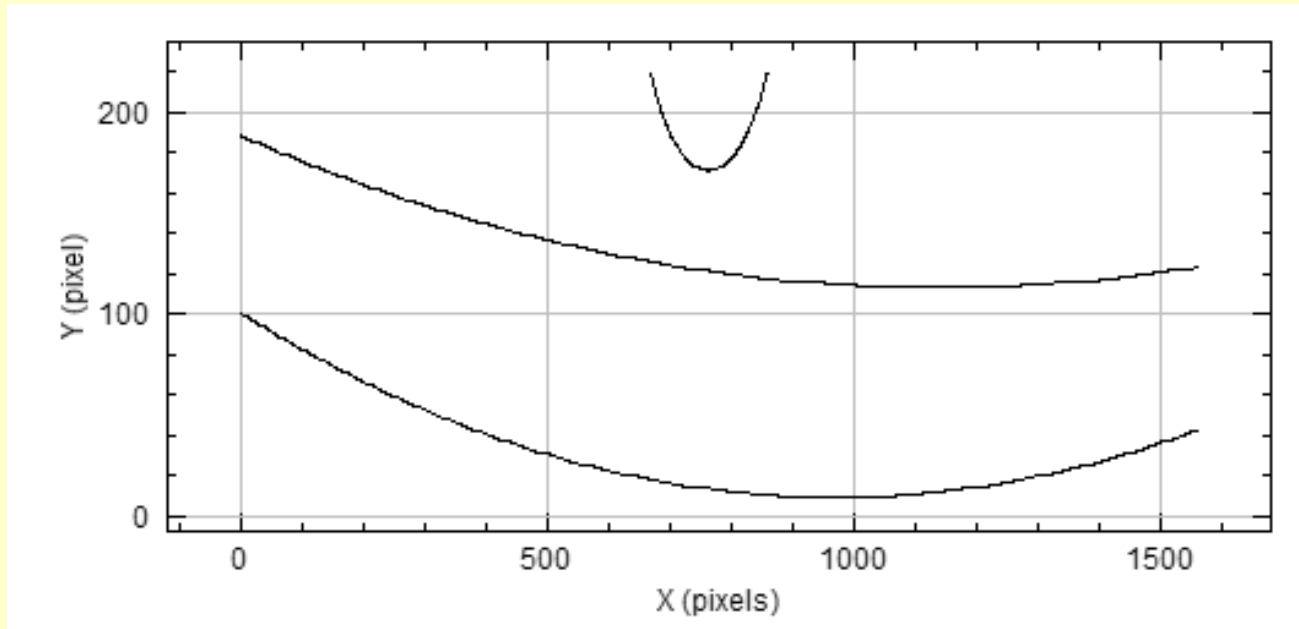


Threshold adjusting



Enhancing contrast

Image J semi-automatic method

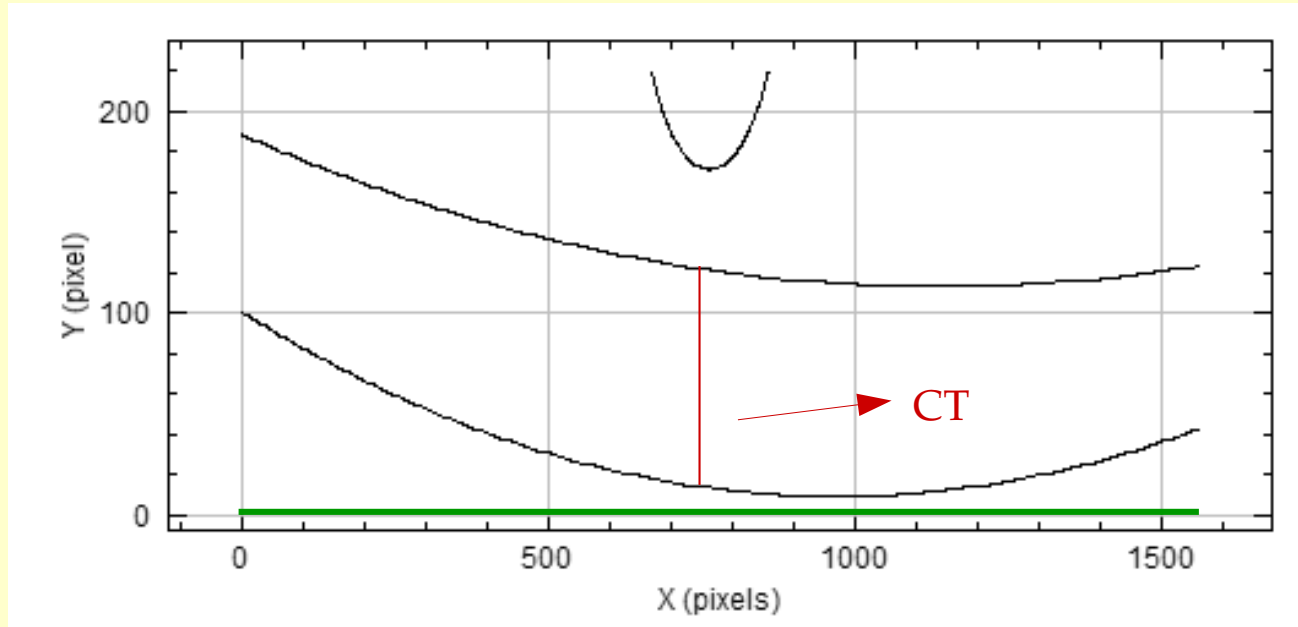


Extracting coordinates:

X axis= pixels from 0 to 1566 i.e. 15 mm size

Y axis= CT

Image J semi-automatic method

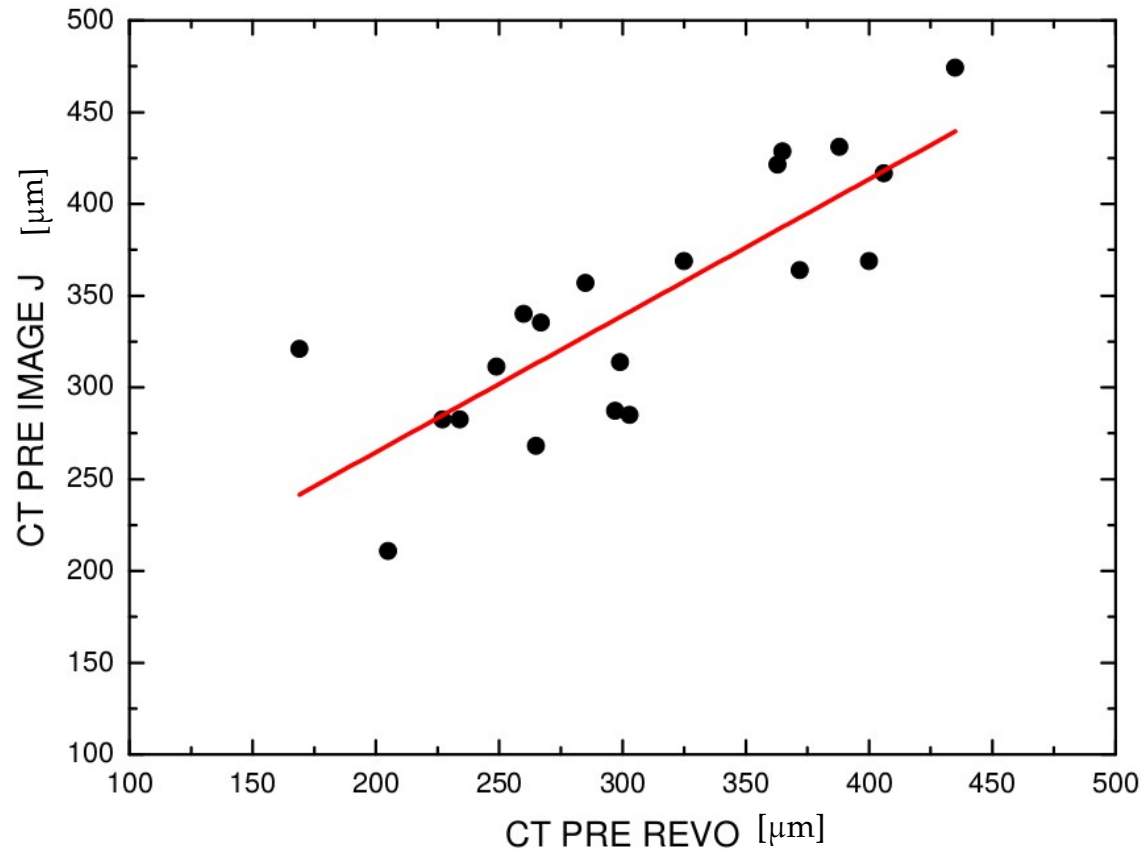


Extracting coordinates:

X axis= pixels from 0 to 1566 i.e. 15 mm size

Y axis= CT

Preliminary results: Revo vs ImageJ



$R = 0.83$

$Sig < .001$

Normality

test

$p > 0.05$

Repeatability

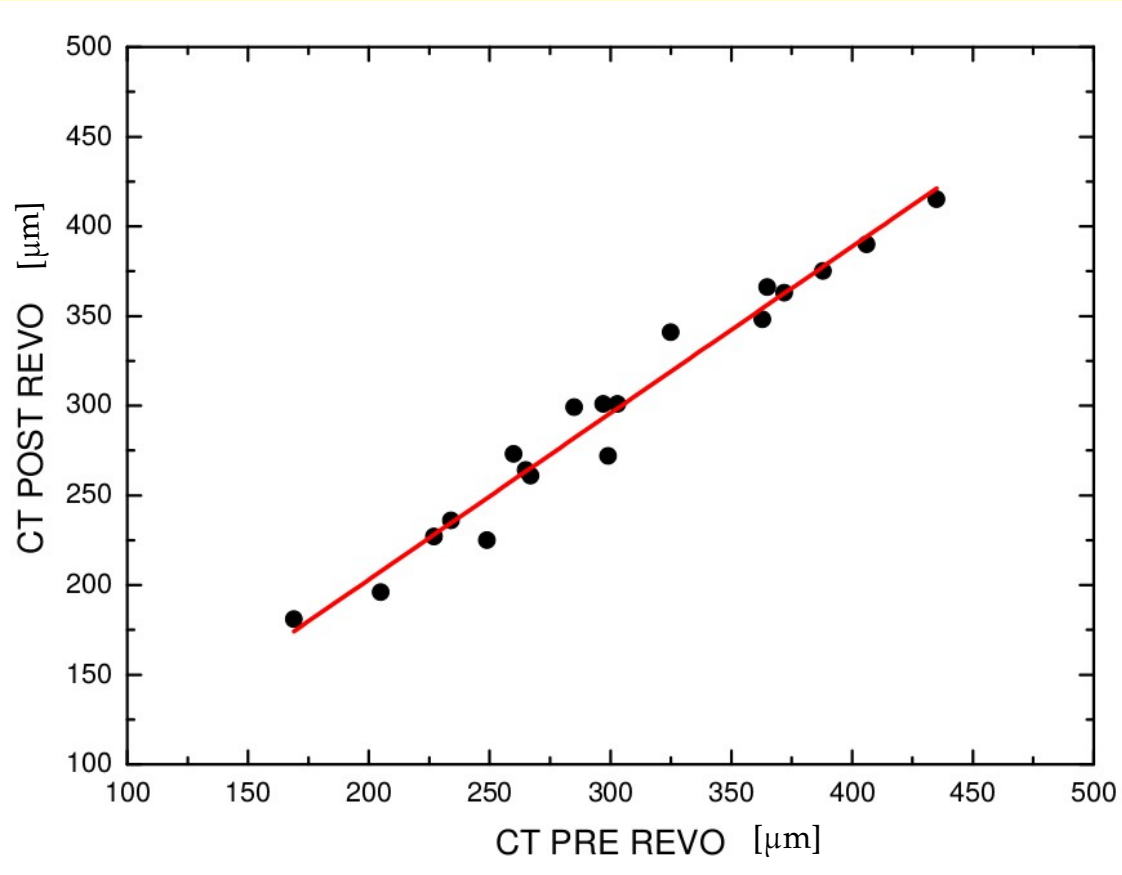
test:

Revo CV = 0.07

Image J CV = 0.06

Comparison: pre and post near task

REVO – MANUAL METHOD



$R = 0.93$

$Sig < .001$

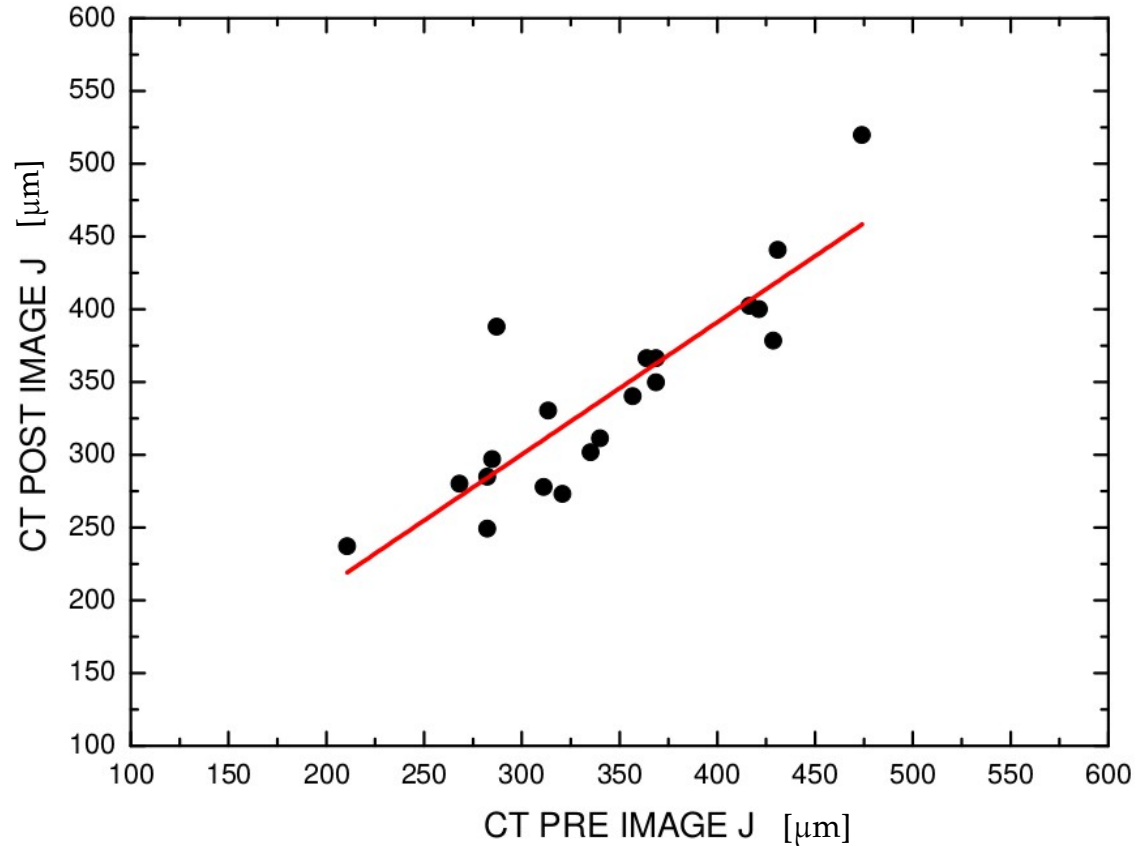
Near task: 10' video

at

33 cm distance

Comparison: pre and post near task

ImageJ – SEMI-AUTOMATIC METHOD



$R = 0.87$

$Sig < .001$

Near task: 10' video

at

33 cm distance

Future perspectives

- Increase the sample size analysis to enhance the statistics
- Compare time 0 acquisition (Winter 2023) with time 1 and time 2 (each is after 9 months)
- Compare pre and post near task for both methods and maybe evaluate a longer time (maybe 20')
- Improve the technique or developing other methods (i.e. python script ...)

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Thank you