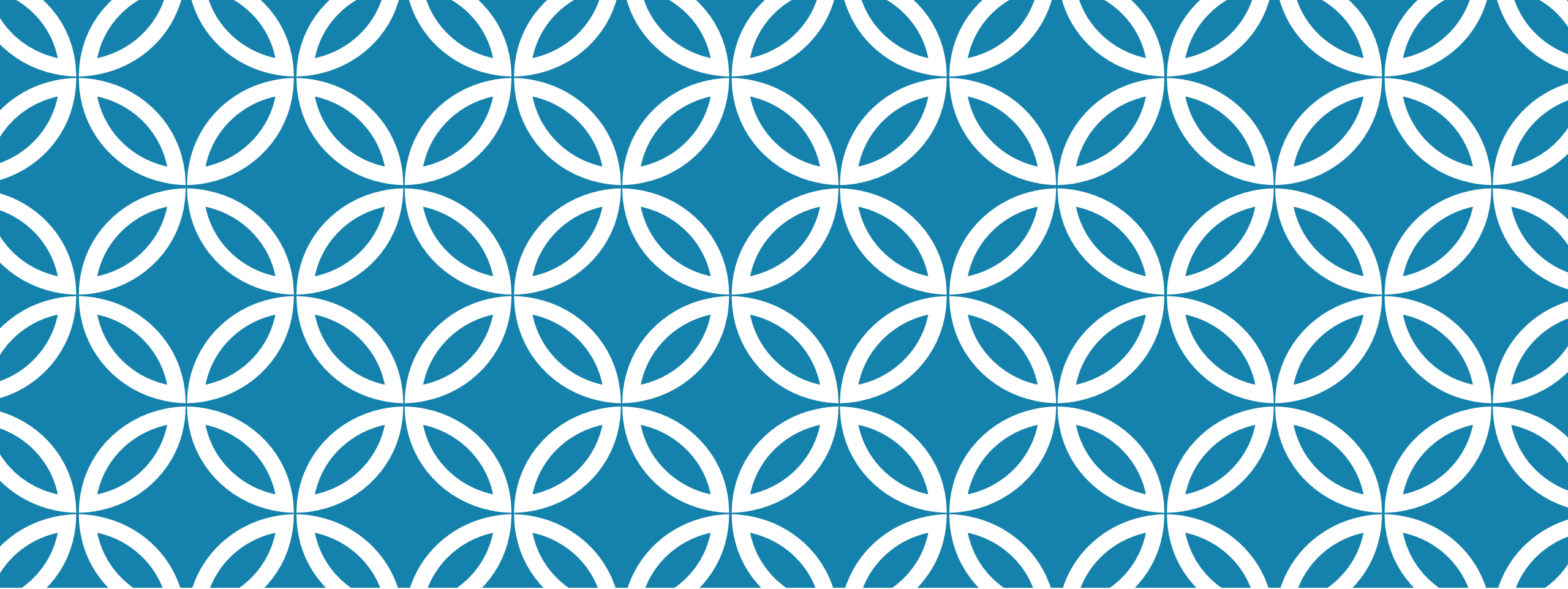




IOP & GONIOSCOPY

Presented by:Dr.Zeina al-junaidi
Supervisor:Dr.MHD KouKou



INTRAOCULAR PRESSURE |

IOP

It is not a part of the diagnosis of the glaucoma it is only a risk factor

But we cannot treat glaucomatous optic neuropathy directly we treat the one risk factor we can impact .. IOP

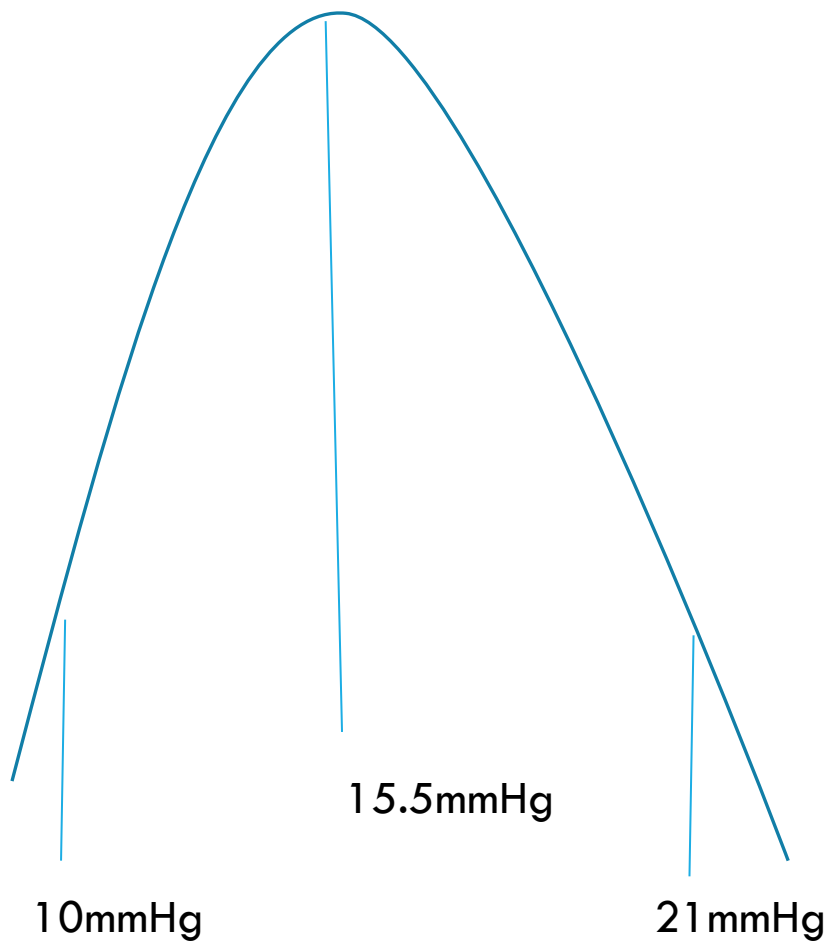
IOP

Mean IOP is 15.5 mmHg

With +/- SD the “normal” range is 10—21 mmHg

There is considerable fluctuation (2—6 mmHg) with more fluctuation in patients with glaucoma

IOP



Few ppl who are under 10mmHg
Most of ppl are above 21mmHg ...10% of adults

IOP ARTIFACTS

Breath holding

Crying

Valsalva

Examiner pushing on globe

Corneal issues(Cylinder, Edma , Scarring)

THINGS THAT CAN RAISE IOP

***Elevated Episcleral venous pressure:**

-tight tie

-Bending over or lying supine

***Rapid fluid intake**

***corticosteroids**

THINGS THAT CAN LOWER IOP

Aerobic exercise

General anesthesia

Pregnancy

Alcohol

Marijuana

IOP MEASUREMENT

Directly : manometric technique.

Palpation: during which the examiner estimates IOP by the response of the eye to digital pressure

Tonometers

weight applied to the cornea

Applanation :force necessary to flatten a small, standard area of the cornea

Goldman
Perkins

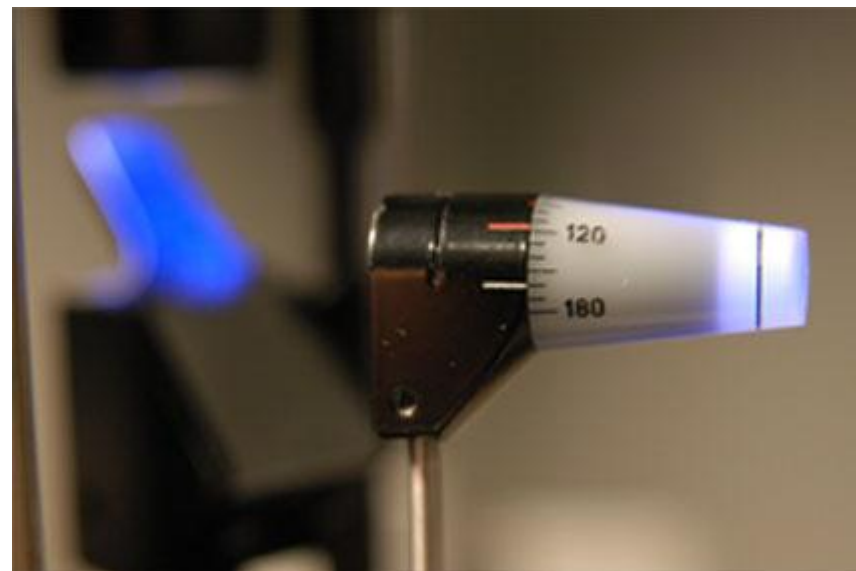
indentation : amount of deformation or indentation of the globe in response to a standard

Strain Gauge(Tonopen)

Rebound(iCare)

APPLANATION INSTRUMENTS

Goldmann tonometer



GOLDMANN APPLANATION TONOMETRY

Goldmann applanation tonometry is the gold standard

Applanation tonometry displaces only about 0.5 nml of aqueous humor, which raises IOP by about 3%

the Goldmann Applanation tonometer contains a bi-Prism that flattens the cornea over an area 3.06mm in diameter

at this diameter the tear's capillary attraction is balanced by the cornea's resistance to flattening

This all true for an average thickness of 520

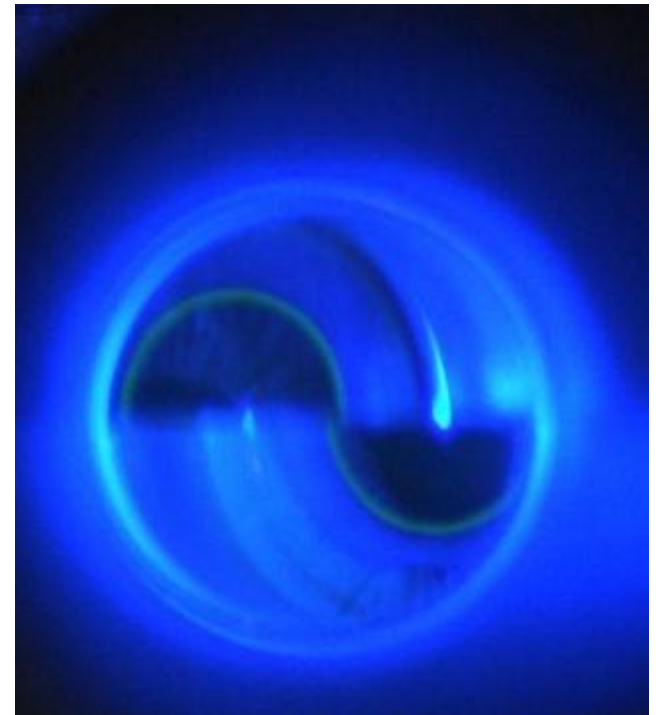
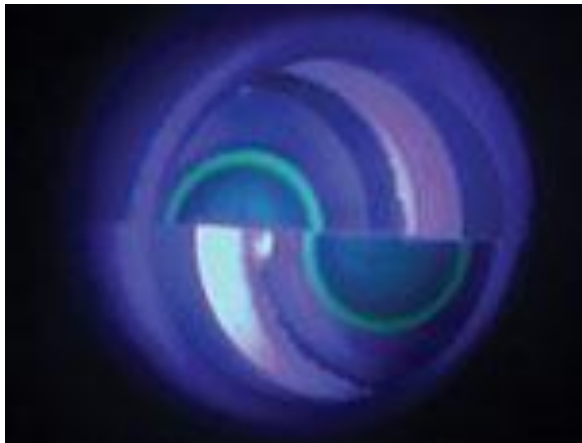
Thick corneas overestimate pressure

Thin corneas underestimate pressures

GOLDMANN APPLANATION TONOMETRY

GOLDMANN APPLANATION TONOMETRY

It is important that the width of the fluorescent band is about 10% of the width of the arch that means not too thin to underestimate and not too thick to overestimate



GOLDMANN APPLANATION TONOMETRY

If the patient has high astigmatism :

Can overcome by

Making two measurements 90 degrees apart and averaging

Or by line up the tonometer tip with $-$ cylinder axis

GOLDMANN APPLANATION TONOMETRY

It requires smooth cornea

Affected by corneal thickness

___thick cornea overestimates IOP

*except edematous corneas which underedtime

___thin cornea underestimates

*refractive surgery

CCT AND IOP

CCT (microns)	Adjustment for Measured IOP mmHg
445	+7
455	+6
465	+6
475	+5
485	+4
495	+4
505	+3
515	+2
525	+1
535	+1
545	0
555	-1
565	-1
575	-2
585	-3
595	-4
605	-4
615	-5
625	-6
635	-6
645	-7

PERKINS TONOMETER

Is a portable version that can be used vertically or horizontally



STRAIN GAUGE (TONOPEN)

Electronic strain gauge flattens the cornea

Takes 4—10 readings and gives a single number

Fast and Works well on scarred or irregular corneas



REBOUND (ICARE)

Probe rapidly directed at cornea and bounces back and it measure the rebound of of the cornea

Greatest advantage is the ability to check pressures in young children without anesthesia



MISCELLANEOUS

Schiotz

Dynamic contour

Pneumatometer

Air puff

Transpalpebral

DYNAMIC CONTOUR

Pasacal

*Concave sensor

--less affected by corneal thickness

*measures ocular pulse amplitude

*expensive

*less influenced by corneal thickness but more by corneal curvature



GEFEDERTER MESS-ARM gewährleistet konstante Appositionskraft und schont die Hornhaut

Mikroprozessor erfasst 100 WERTE PRO SEKUNDE

EINDEUTIGE DIGITALE ANZEIGE

Akkustische Rückmeldung durch MESSMELODIE

PNEUMATONOMETER



Flattens the cornea with a probe floating on a column of gas

Like tonopen. It works on scarred corneas

NON-CONTACT TONOMETER

Puff of air to flatten the cornea

Used by providers who couldn't use topical anesthesia

Fairly accurate in the normal range Less accurate at high pressures

Some patients find this uncomfortable



TRANSPALPEBRAL

Diaton

Measures IOP through the upper eyelid

Helpful in eyes with corneal prostheses (like Kpro)



SCHIOTZ TONOMETRY

Inexpensive

Potable

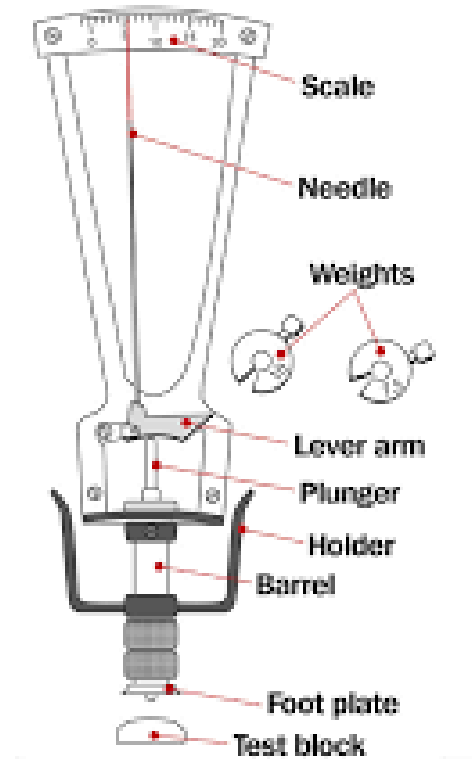
The patient is supine

Weight used to indent the cornea

Depth of indentation measured on a scale

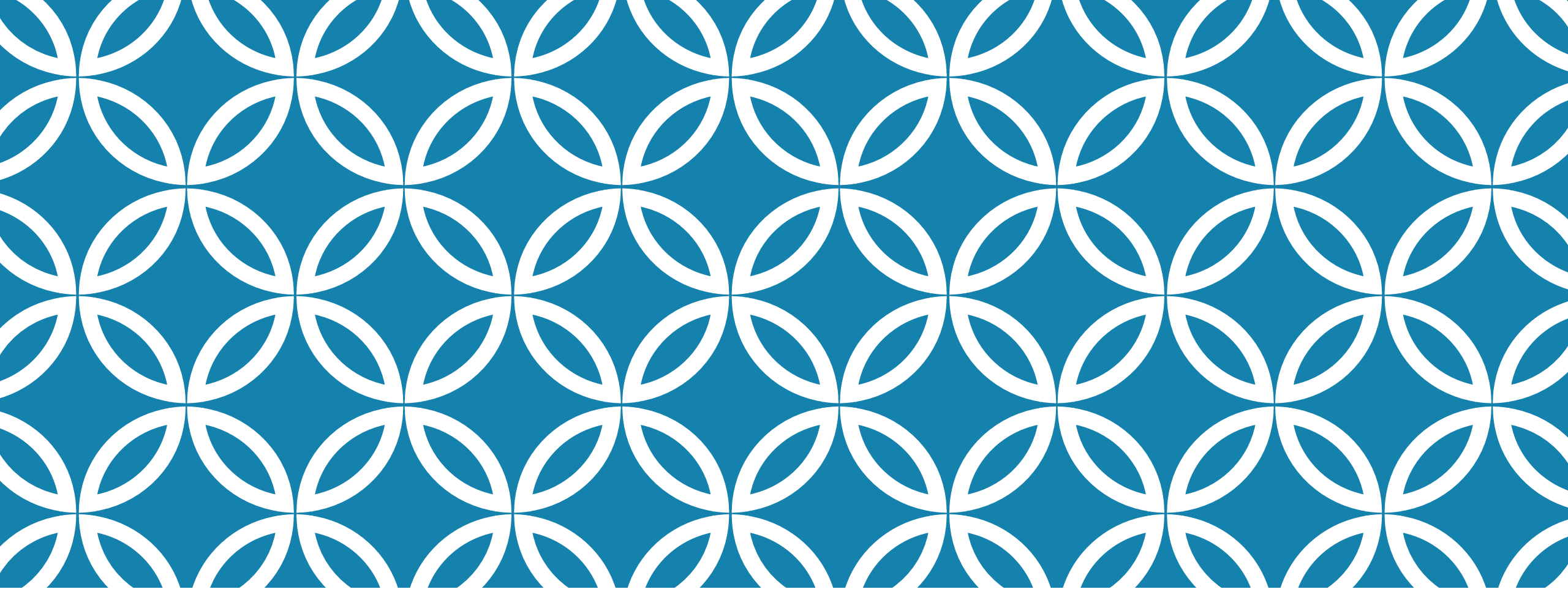
usually 5.5g weight but heavier weight can be added at higher IOPs

IOP calculated by looking up scale reading on table



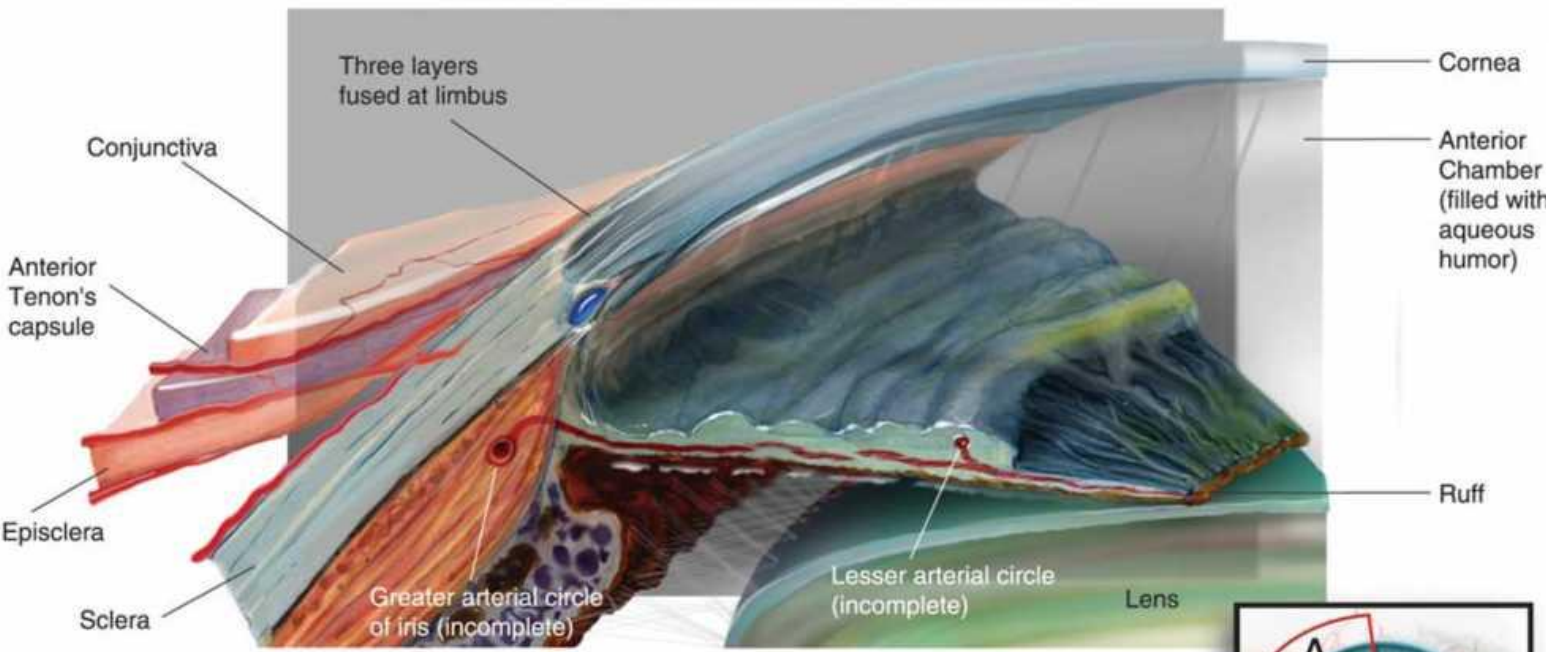
SCHIOTZ TONOMETRY



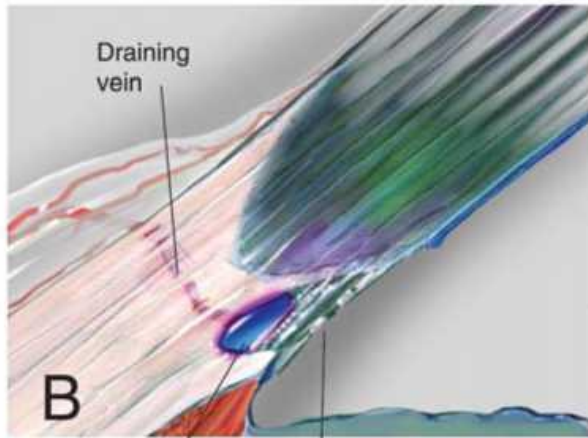


GONIOSCOPY

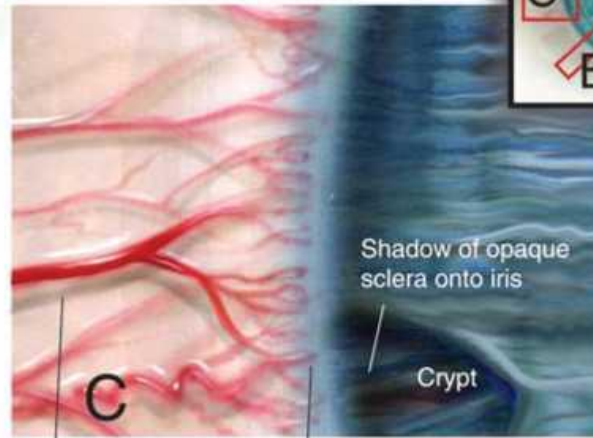




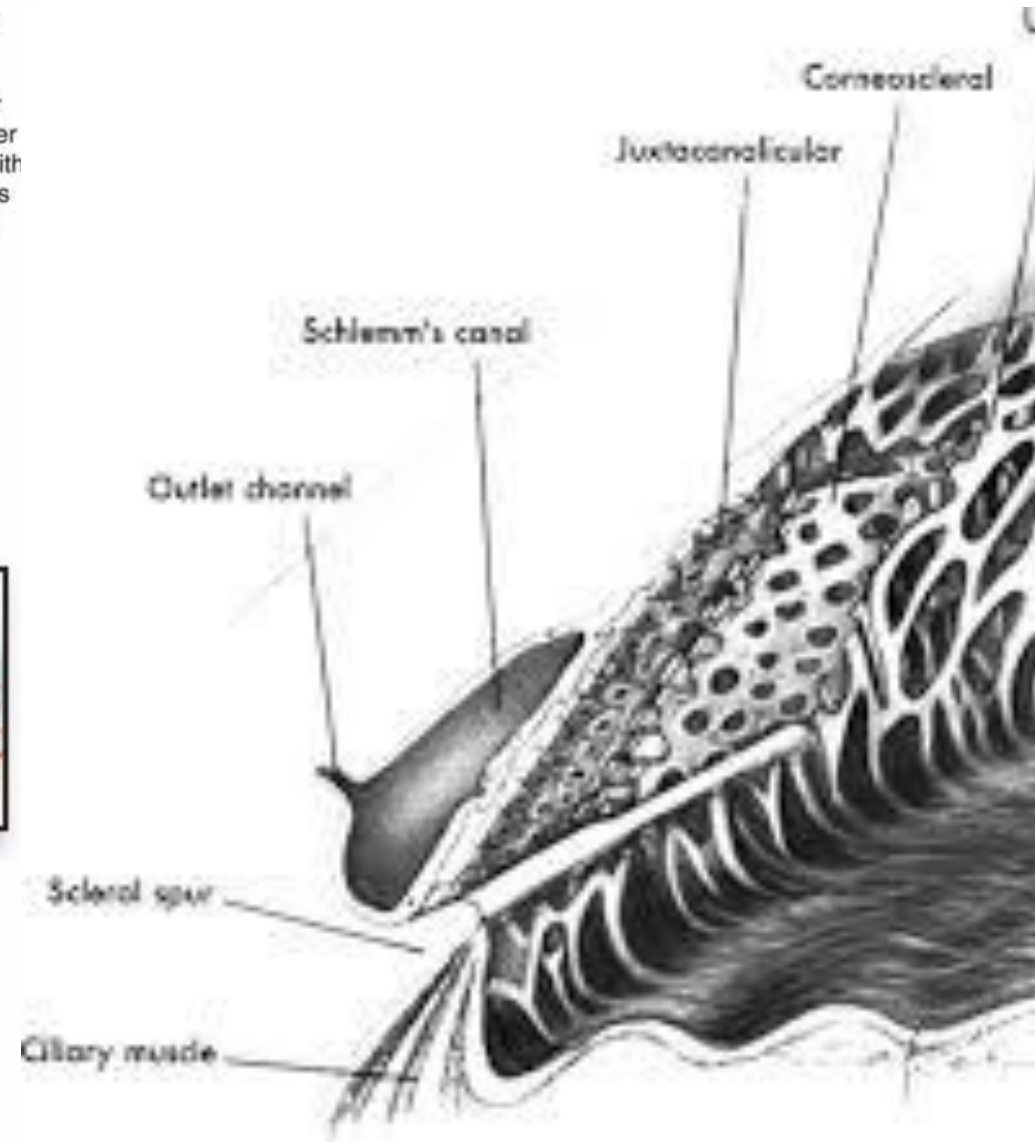
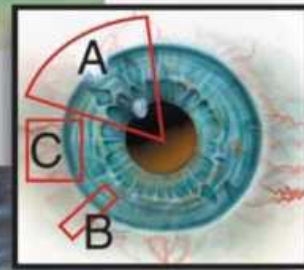
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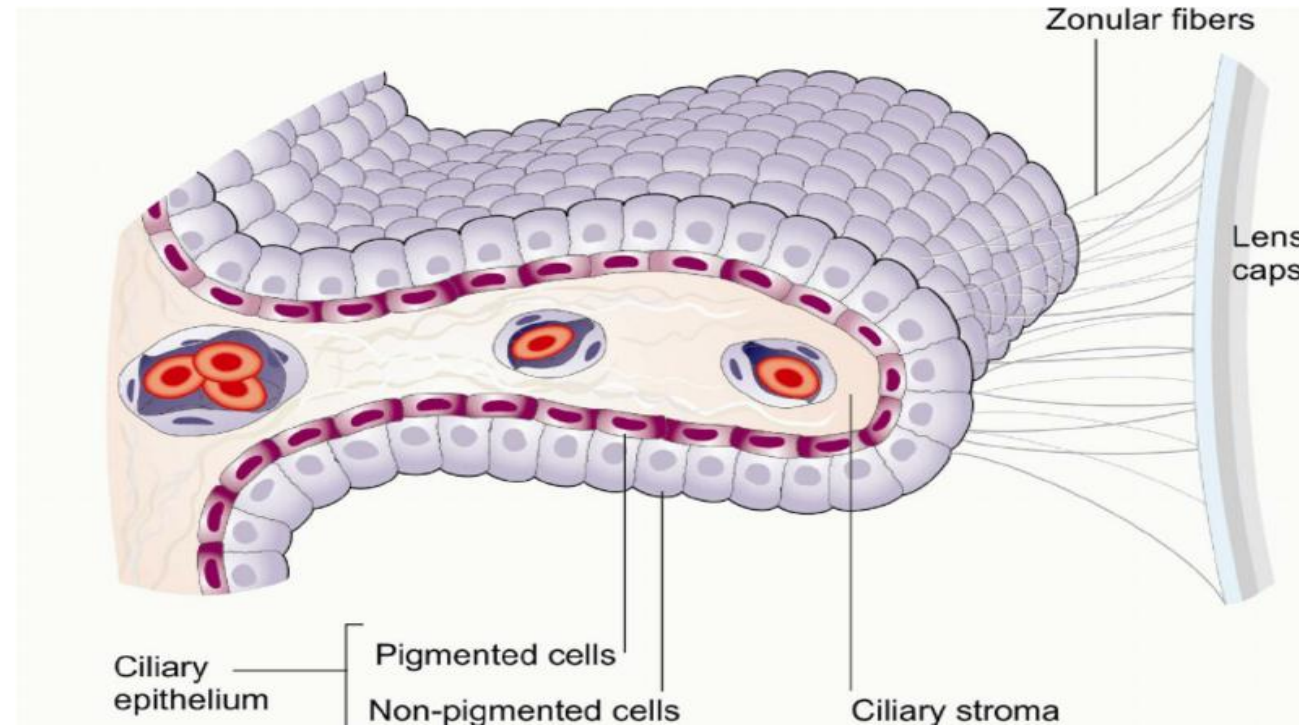
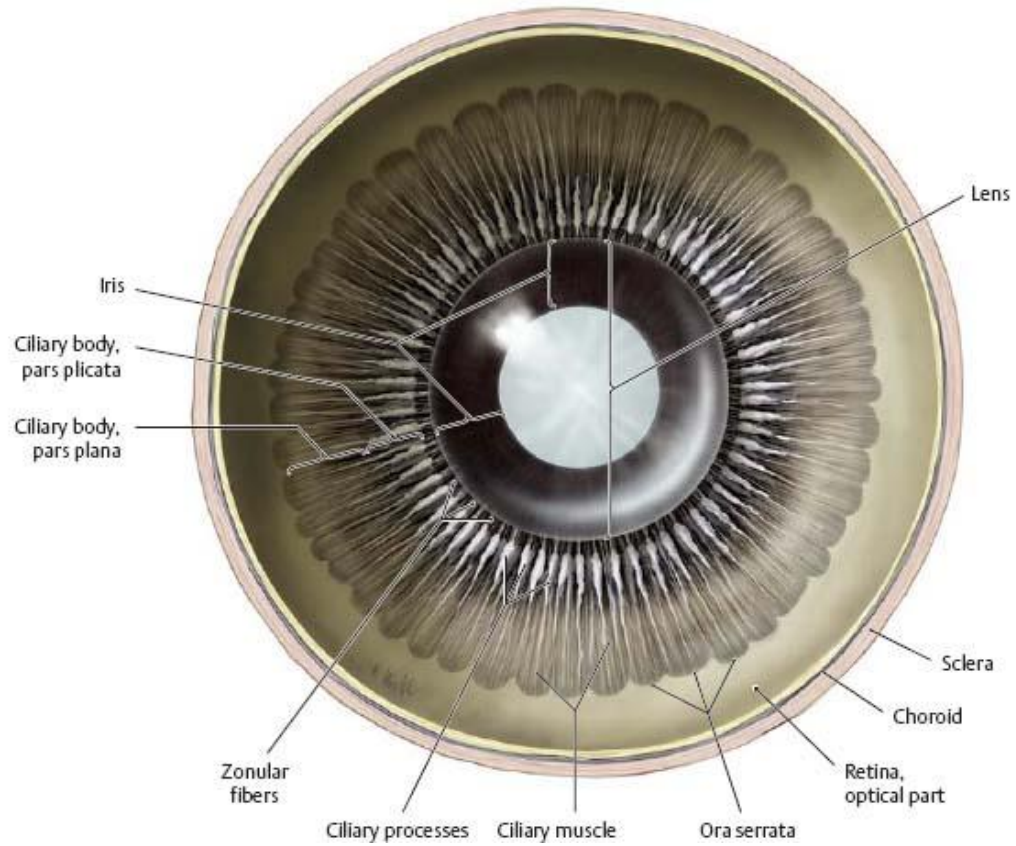


B



C





GONIOSCOPY

