

# Under Pressure !

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## Tonometry

The measurement of intraocular pressure (IOP), unit of measure is millimeters of mercury.

Normal range is 10-21



## Financial Disclosure

Eye Care Associates, Clinical Director

Alcon, KOL

Allergan, Tech Alliance Speaker



## A Little History

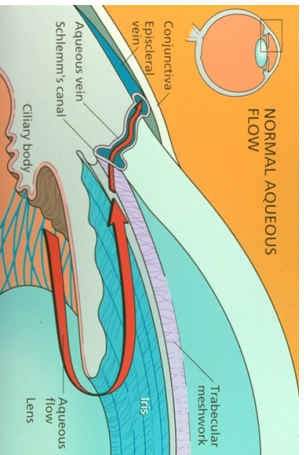
Tonometry was first proposed by Albrecht von Graefe in 1855.

Schiotz was introduced in early 1900's and was the gold standard until the 50's when the Goldmann tonometer was made its debut.



“  
What are we measuring?  
Where does it come from?”

Intraocular pressure is the fluid pressure inside the eye.  
Fluid (aqueous) is produced by the ciliary body.



Flows around the lens through the pupil into the anterior chamber then through the trabecular meshwork into the canal of Schlemm then to venous system.

“  
How does the aqueous get out of the eye?”



“  
Common Methods

- Goldman Applanation measures the force necessary to flatten 306mm diameter area of cornea.
- Tono-Pen involves both applanation and indentation methods into an electronic process.
- Non-Contact Uses air which is emitted with gradually increasing intensity. At the point of corneal flattening, the air column is shut off and the force at that moment is recorded.

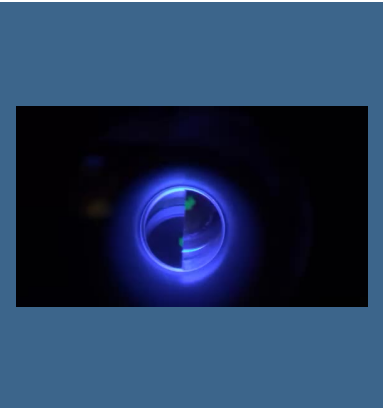
Goldman is the “gold standard”  
It is considered the most accurate method.

“  
Standard Operating Procedure  
Goldman Applanation Tonometry



1. Instill Fluress into each eye
2. Insert clean tonometer tip into biprism holder. Align the 180 with the white mark on the prism holder.
3. Position the cobalt blue filter with the beam at high intensity and shining on the tip at wide angle at 45-60 degrees
4. Set the magnification of the slit lamp to low
5. Position the patient in the slit lamp
6. Looking from the side align the tonometer tip with the patient eye
7. Instruct the patient to focus straight ahead and open as wide as they can and breathe normally
8. Using the slit lamp control handle gently move forward until the tip is touching the cornea
9. Slowly and gently turn the force adjustment knob in the direction required to move the semicircle until the inner edges just touch and do not overlap.

## “ Goldman Applanation Tonometry



## “ Sources of Error/Factors that Affect IOP Measurement



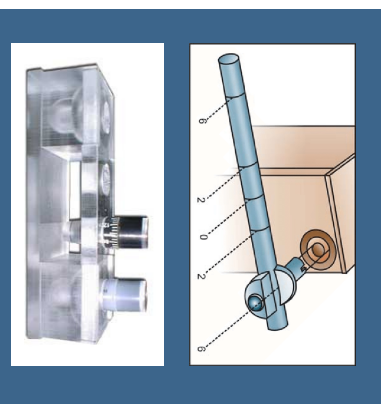
- Body Position
- Tight Neck Tie
- Holding breath
- Straining or squeezing
- Applying force to the globe
- Excessive amount of Fluress
- Malposition of tonometer tip
- High Astigmatism

## “ Factors That Influence IOP



- Anatomy
  - Central corneal thickness
  - Narrow angles / Closed angle

## “ Calibration & Disinfection

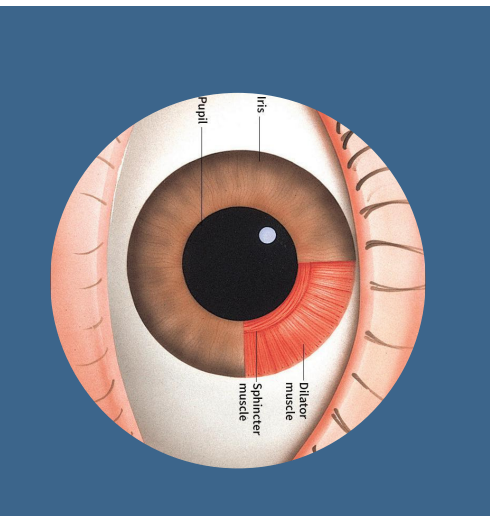


- Calibration should be performed at regular intervals with the weight bar provided by the manufacturer.
  - If the calibration is off, the device must be sent to manufacturer / equipment repair company. You can not fix this yourself in clinic.
- Disinfection should occur following every use.
  - 3% Hydrogen Peroxide soak for 5-10 minutes, then rinse well
  - 10% Bleach solution soak for 5-10 minutes, then rinse well. This is the effective means of disinfection according to AAO & CDC.
  - Per CDC, The use of 70% alcohol wipes has contributed to EKC outbreaks

## What is the pupil

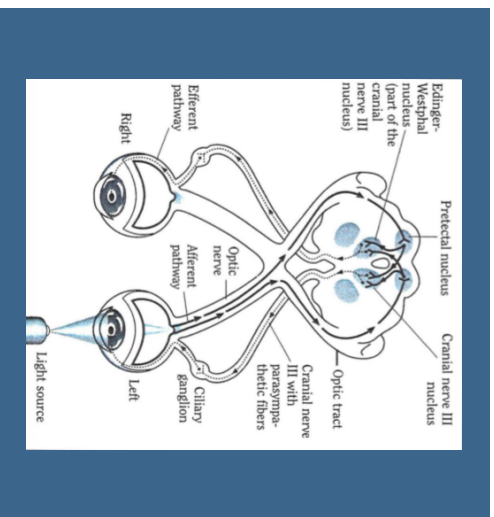
The round opening in middle of the iris.

CN 3  
**Sphincter Muscle**  
**Dilator Muscle**

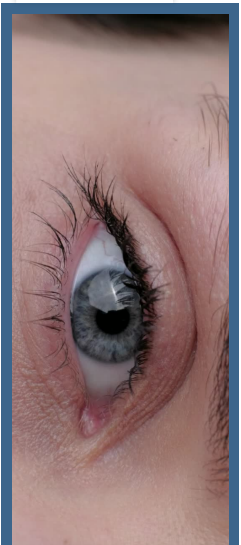


## Parasympathetic Pathway

**Afferent Pathway**  
 To the brain  
**Efferent Pathway**  
 From the brain



**Critically Important**  
 Could mean the difference between life and death.



## Pupillary Assessment

- Pupils should be evaluated for :
- Size
  - Shape
  - Color
  - Reaction
    - Direct
    - Consensual
    - Presence or Absence of APD

## Evaluation

**01**

**Direct Response**

Constriction of the pupil when light is shined directly into the eye.

**02**

**Consensual Response**

Constriction of the pupil in one eye when light is directed into the fellow eye.

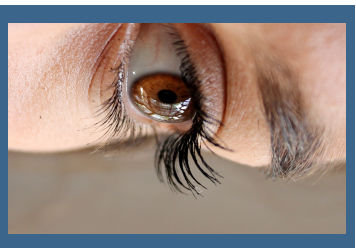
## Evaluation

### Swinging Flashlight

Swing the bright light back and forth into each eye for 2-3 seconds and observe the pupil response. Each pupil should constrict and relax slightly

### Size, Shape, Color

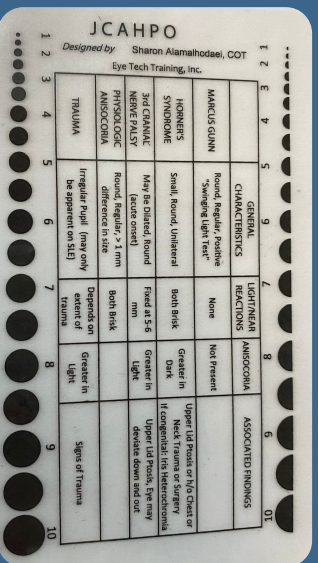
- Is the pupil black in color
- Are the OD & OS equal in size. Is the size between 2-5mm
- Are they round



## Standard Operating Procedure

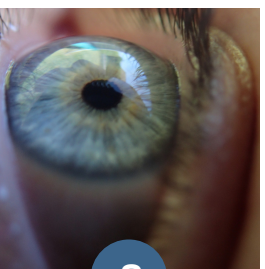
1. Turn off room lights to get the room as dark as possible.
2. Have patient fixate on distance target
3. Without shining the light directly into the pupils, use enough light from the transilluminator to measure the dim light pupil size in each eye.
4. Shine light from transilluminator into the center of one eye while simultaneously checking the following:
  - Direct response, reaction of the pupil in which you are shining the light.
  - Consensual response, reaction of the fellow eye.
  - Size
  - Shape
6. Assess for presence of APD, by using the swinging flashlight test.
  - Shine light of the transilluminator into one eye. Observe constriction (if present). Hold for 1- 2 seconds.
  - Quickly shift the light into the other eye going straight across the bridge of the nose.
  - If APD is present, the examiner will see that the pupils will dilate when the light shifts to the eye with the APD and the pupils will constrict when the light is shifted to the eye without an APD.
7. Document results in patient's chart.

## Pupil Gauge



## Abnormalities

01



### APD

Defect exists when one eye dilates on direct light stimulation. The other eye will dilate consensually.

02

### Anisocoria

Unequal pupil sizes



## “ Professionalism

Every interaction you have in the office or as a representative of your office speaks to your level of professionalism.

- Tone & Volume of voice if speaking
- Grammar if written communication
- Appearance - Are you neatly groomed ?
- Do you avoid gossip ?
- How do you handle constructive criticism ?
- Are you always prompt & attentive ?



## “ Setting The Expectation

- Introduce yourself
- Let patient know your going to do a few things to get them ready for the doctor
- Set the expectation when you put them back in the waiting area.
  - Sue will be out to get you for the Visual field in a few minutes, if behind tell them 2 patients ahead of you.
  - It will take ~30 min for your eyes to dilate then when a room becomes available we will get you in to see the doctor.
- Unfortunately doctor is behind today, he had some very sick patients which required additional attention this morning. She/He will be with you just as soon as she/he can. Thank you for your patience.



## “ Generational Differences

| 8 Asas of Generational Differences | Traditionalists                   | Baby Boomers                   | Gen X                     | Millennials                       |
|------------------------------------|-----------------------------------|--------------------------------|---------------------------|-----------------------------------|
| 1. Communication                   | Formal                            | <i>Overstated</i>              | <i>Concise</i>            | <i>Fast</i>                       |
| 2. Work Style                      | By the book                       | <i>Opportunistic</i>           | <i>Efficient</i>          | <i>Cost-effective</i>             |
| 3. Work/ Education Balance         | Work & family separate            | <i>Work comes first</i>        | <i>Balances a must</i>    | <i>Work/Life Style</i>            |
| 4. Etiquette/ Grooming             | Formal                            | <i>Professional</i>            | <i>Casual</i>             | <i>Relaxed</i>                    |
| 5. Motivation/ Rewards             | Self motivated                    | <i>Group actions</i>           | <i>Time off</i>           | <i>Role Free To Conquer Tasks</i> |
| 6. Respect/ Loyalty                | To the Organization               | <i>Of the Organization</i>     | <i>To the Industry</i>    |                                   |
| 7. Leadership                      | Ultimate respect for Authority    | <i>Respect for Ourselves</i>   | <i>Empowerment is Key</i> | <i>Freedom &amp; Key</i>          |
| 8. Technology                      | "It's ain't broke, don't fix it." | <i>It's necessary progress</i> | <i>It's essential</i>     | <i>"I've have anything else?"</i> |



## “ Patient Education

Spending just a few minutes educating our patients can help to ensure understanding & compliance. Could be in the form of counsel or in writing.

- Drop instruction sheets
- Disease information
- Patient assistance information



|     | Medication           | Eye        | Dose  |
|-----|----------------------|------------|---|
| MON | LUMIGAN - TEAL       | RIGHT LEFT | <input type="checkbox"/> <input type="checkbox"/> |
|     | AZOPT - ORANGE       | RIGHT LEFT | <input type="checkbox"/> <input type="checkbox"/> |
|     | COMBIGAN - DARK BLUE | RIGHT LEFT | <input type="checkbox"/> <input type="checkbox"/> |
| TUE | LUMIGAN - TEAL       | RIGHT LEFT | <input type="checkbox"/> <input type="checkbox"/> |
|     | AZOPT - ORANGE       | RIGHT LEFT | <input type="checkbox"/> <input type="checkbox"/> |
|     | COMBIGAN - DARK BLUE | RIGHT LEFT | <input type="checkbox"/> <input type="checkbox"/> |
| WED | LUMIGAN - TEAL       | RIGHT LEFT | <input type="checkbox"/> <input type="checkbox"/> |
|     | AZOPT - ORANGE       | RIGHT LEFT | <input type="checkbox"/> <input type="checkbox"/> |
|     | COMBIGAN - DARK BLUE | RIGHT LEFT | <input type="checkbox"/> <input type="checkbox"/> |



### INSTRUCTIONS FOR USING EYE MEDICATIONS

Please wait 5 minutes between each drop

1. \_\_\_\_\_ 1 drop into \_\_\_\_\_ eye \_\_\_\_\_ a day
2. \_\_\_\_\_ 1 drop into \_\_\_\_\_ eye \_\_\_\_\_ a day
3. \_\_\_\_\_ 1 drop into \_\_\_\_\_ eye \_\_\_\_\_ a day

## “ Patient Assistance

myAbbvie Patient ASSIST | Assistance

You may be eligible to receive free Lumigan if you:

- Have been prescribed Lumigan
- Have limited or no health insurance coverage
- Live in the United States
- Are being treated by a licensed U.S. health care provider on an outpatient basis

If you have insurance, we will review your qualifying financial need based on a combination of your insurance coverage, household income, and out-of-pocket medical expenses during the application process. To help you understand the income guidelines that we use to evaluate qualifying financial need, we've provided the table below.

| Household size | Annual income     |
|----------------|-------------------|
| 1              | \$77,280 or less  |
| 2              | \$104,520 or less |
| 3              | \$131,760 or less |
| 4              | \$159,000 or less |

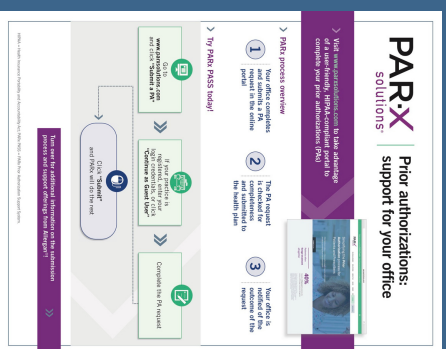
After 4, add \$27,240 for each additional dependent family member

## “ Prior Authorizations

"If you are quoted a high cost or told it's not covered ask the pharmacy to contact us."

## “ Good Days Chronic Disease Fund

Patients who meet income criteria can get assistance with injectable coverage.



**GOOD DAYS** **CHRONIC DISEASE FUND**

Patients: Patients & Partners: About: CONTACT

### Macular Disease

Eligibility Criteria

1. Patient must be diagnosed with a covered disease and program must be accepting enrollments
2. Patient must have a valid Social Security number to apply for assistance and receive treatment in the United States
3. Patient must be seeking assistance for a prescribed medication that is FDA approved or have the correct diagnosis
4. Patient is required to have valid Medicare or Military Insurance coverage
5. Patient income level must be at or below 500% of the Federal Poverty Level (FPL)

[APPLY NOW](#)

Beovu | Jervet | Suvimo  
Eylea | Lucentis | Vabysmo  
Iluvien | Ozurdex



## “ Tier Exception

Type of coverage determination request that is used when a medication is on a patient's formulary but is placed in a nonpreferred tier that has a higher co-pay. Plans may make a tier exception when the drug is demonstrated to be medically necessary.

**Supporting Information for an Exception Request or Prior Authorization**

EGDUA, USTP and ETRP are not covered as provided in a patient's supporting statement. (PDR: ACUTOPAZOLIN) (NADA) (any other supporting information)

I have been using a drug that was previously included on a lower copayment tier but is being moved to or was moved to a higher copayment tier (being exception) \*

**Request for Formulary tier exception** Specify below if not noted in the DRUG HISTORY section below on this form: (1) formulary or preferred drug brand and strength of drug (NDC) (2) address outcome of formulary or preferred drug brand and strength of drug (NDC) (3) address outcome of maximum dose and length of therapy for drug(s) (include (4) contraindications). Please list specific reason any patient(s) drug(s) were formulary drug(s) are contraindicated.



## “ Excellent Reminder

**“ BECAUSE THE PATIENT”**

Because the patient has a need,  
 ... We have a job to do.  
 Because the patient has a choice,  
 ... We must strive to be the best choice.  
 Because the patient has sensitivities,  
 ... We must be considerate.  
 Because the patient is unique and has an urgency,  
 ... We must be flexible & quick.  
 Because the patient has high expectations,  
 ... We must excel.  
 Because the patient has influence,  
 ... We have the hope of more patients.  
 Because of the patient,  
 ... **WE EXIST!**

## “ Excellent Resources



- Allergan Tech Alliance
- Alcon Experience Academy
- Dr. Tim Root's Website
- AAOP
- JCAHPO

Please feel free to contact me with any questions.

[vmckenia4@gmail.com](mailto:vmckenia4@gmail.com)

## References

Stein, H. A., Stein, R. M., & Freeman, M. L. (2017). The Orthologic Assistant. E-Book (10th ed.). Elsevier - OJCE. <https://books.google.com/books?id=7980323594792>

**YOU**  
got  
This

**Thank You**