### Purpose
To determine the frequency of relative afferent pupillary defect (RAPD) in patients without visual field loss.

### Methods

#### Participants:
- Retrospective chart review: Jan-May 2012.
- Reviewed electronic medical records of 672 patients.

#### Data:
- Visual acuity, IOP, cup/disc ratio, disc damage likelihood scale (DDLS) score, and visual field (VF) mean defect (MD).

#### Analysis:
- The visual fields were measured using either Humphrey or Octopus.
- Normal VF defined as:
  - Humphrey: MD score of -6dB or more positive, without any of the following: 3 adjacent data points of <5% with at least one point <1%, PSD significant at <0.05 (or 5%), Glaucoma hemifield test outside normal limits.
  - Octopus: MD score of -0.8 or more negative, with a Bebie curve line not intersecting with the lower confidence limit line.
- A true RAPD is a Swinging-Flashlight-Method (SFM) RAPD with clinical asymmetry if it correlates with inter-eye structural asymmetry:
  - MD ≥ 5 dB, OR
  - DDLS score ≥ 1 , or
  - C/D ratio ≥ 0.1.

#### Results
- After exclusion, the analyzed sample size was 152, 28 of whom had visual field via Humphrey and 124 via Octopus. Among 152 analyzed subjects, 89 were RAPD negative, 63 were RAPD positive.

#### Conclusions
- There was no association between presence of an RAPD and whether or not the field was normal.
- 1/3 to 1/2 of patients in a glaucoma practice have a positive RAPD in the absence of a visual field defect being detected by Octopus or Humphrey perimetry.

#### Future Work
- In patients with RAPD and normal VF, determine how many eventually develop visual field defect and glaucoma.
- Examine how clinical asymmetries compare between patients with and without glaucoma.
- Investigate the role of imaging in diagnosing glaucoma in patients with RAPD but normal VF.