



# Effect of Age on Selective Laser Trabeculoplasty

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# Introduction

- Selective Laser Trabeculoplasty (SLT) uses a Q-Switched frequency-doubled (532 nm), low energy Nd:YAG laser, which targets melanocytes in the trabecular meshwork<sup>1,2</sup>.
- SLT treatment induces a biologic response in the trabecular meshwork, which involves the release of cytokines that trigger macrophage recruitment and other changes, leading to reduction in intraocular pressure (IOP).
- SLT treats the trabecular meshwork without causing thermal nor coagulative damage to surrounding structures.

1. Latina MA, et al. Selective targeting of trabecular meshwork cells: in vitro studies of pulsed and CW laser interactions. *Exp Eye Res.* 1995;60:359-372.

2. Latina MA, et al. Q-switched 532-nm Nd:YAG laser trabeculoplasty (selective laser trabeculoplasty): a multicenter, pilot, clinical study. *Ophthalmology.* 1998;105:2082-2090.



# Purpose



- To examine the effect of age on Selective Laser Trabeculoplasty (SLT), as primary or secondary therapy, to decrease intraocular pressure (IOP) and reduce the number of medications (meds) used in patients with glaucoma.



# Methods

- Retrospective chart review was performed on 2,350 of 3,034 eyes from a continuous case series of eyes treated with SLT over 8 years.
- Eyes were grouped according to therapy method (primary or secondary) and age category:
  - Low: 59 years of age or less.
  - Middle: between 60 and 79 years of age.
  - High: 80 years of age or more.
- Post-SLT IOP decrease and reduction in meds were analyzed.
- Analysis of variance (ANOVA) was used to compare maximum pre- and average post- procedure IOP and meds.



# Results: Primary

<b>Age Range</b>	<b>Mean Follow-Up (days)</b>	<b>Mean IOP Decrease (%)</b>
<b>Low</b>	<b>799</b>	<b>31%</b>
<b>Middle</b>	<b>724</b>	<b>30%</b>
<b>High</b>	<b>784</b>	<b>29%</b>

➤ There was no significant difference in results ( $p > 0.05$ ).



# Results: Secondary

<b>Age Range</b>	<b>Mean Follow-Up (days)</b>	<b>Mean IOP Decrease (%)</b>	<b>Mean Meds Reduction (%)</b>
<b>Low</b>	<b>677</b>	<b>24%</b>	<b>63%</b>
<b>Middle</b>	<b>527</b>	<b>17%</b>	<b>58%</b>
<b>High</b>	<b>464</b>	<b>18%</b>	<b>57%</b>

➤ There was no significant difference in results ( $p > 0.05$ ).



# Discussion

## ➤ The Glaucoma Laser Trial

- Established efficacy of laser trabeculoplasty in lowering IOP in previously untreated glaucoma patients<sup>1</sup>.

## ➤ The Ocular Hypertensive Treatment Study and

## ➤ The Early Manifest Glaucoma Trial

- Established efficacy of early and effective treatment to preserve long-term visual function in glaucoma patients<sup>2,3</sup>.
- Our findings build on these and suggest, as a result of age, after treatment with SLT there was no significant difference in IOP decrease nor in reduction of the number of meds used.
- Further study with controlled clinical trials is indicated.

1. The GLT Research Group. GLT. *Ophthalmology*. 1990;97:1403-1413.

2. Kass MA, et al. OHTS. *Arch Ophthalmol*. 2002;120:701-713.

3. Heijl A, et al. EMGT. *Arch Ophthalmol*. 2002;120:1268-1279.



# Conclusion



- In this large, long-term clinical series, there seems to be no effect of age on Selective Laser Trabeculoplasty, as primary or secondary therapy, to decrease intraocular pressure or reduce the number of medications used in patients with glaucoma.