

# What's New in Optometric Laser Procedures

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Virginia Optometric Association Fall Conference

## SLT first

- LiGHT at six years: about 7 in 10 SLT-first eyes stayed at target pressure without drops or glaucoma surgery.
- SLT-first eyes also progressed less and needed fewer trabeculectomies. A later analysis found slower visual field loss at similar average pressures, clearest in mild glaucoma.
- Repeat SLT works, and a weak first response doesn't reliably predict a weak second one.

## What weakens the SLT response

- Time on drops: In one 10-year cohort, about 6 in 10 drop-naïve eyes succeeded at a year, versus almost none after heavy drop exposure. Other studies find a smaller effect.
- Longer disease duration, preserved drops, and prior cataract surgery also predicted worse results.
- Lower starting pressure tends to respond less to SLT. Advanced disease and prior glaucoma surgery predict earlier failure.
- Energy and extent matter. In a reanalysis of a Swedish randomized trial, 360-degree treatment at higher, bubble-titrated energy gave the biggest pressure drop. A large NIH-funded trial of fixed low energy versus standard titrated energy was stopped early.
- Pseudoexfoliation predicted a weaker response in the Swedish trial, with risk of early pressure spikes. Check pressure after treating them.

## **Direct SLT**

- DSLT treats through the limbus with no gonio lens, which makes it fast and simple.
- It lowers pressure, but its pivotal trial missed proving it equal to conventional SLT at six months. It looked similar at 12 months in a secondary analysis. A 2026 retrospective comparison favored conventional SLT.
- Consider it as a convenience option. Conventional SLT is still the benchmark.

## **YAG capsulotomy**

- After premium IOLs, capsulotomy rates are about 1 in 5 by two years,
- Macular thickening after YAG is small and usually not clinically meaningful. Alpha-agonist pretreatment cuts pressure spikes.
- Case reports of IOP spikes costing vision in monocular and advanced glaucoma patients.
- Uveitic eyes: about three months of quiet before treating was linked to fewer flares.
- A dissatisfied premium-IOL patient isn't automatically a YAG. In one series, capsulotomy helped fewer than 1 in 5, while IOL exchange helped nearly all, and exchange went better with the capsule intact. Coordinate with the surgeon first.
- In eyes with nonproliferative diabetic retinopathy after cataract surgery, YAG was linked to more progression to proliferative disease in a large records study.

## **Laser peripheral iridotomy**

- Most angle-closure suspects never progress. LPI roughly halves the risk. Treated eyes develop more cataract. Observation is an accepted option for lower-risk suspects.

- What pushes you toward treating: a need for frequent dilation, family history, medications that can provoke closure, symptoms of intermittent closure, and poor access to urgent care.
- LPI doesn't open every angle. About 1 in 3 treated eyes still had a closed angle at five years. Plateau iris is a strong progression risk, though the numbers were small. Keep doing gonioscopy after LPI.
- Acute angle closure after dilation: roughly 1 in 7,000 to 1 in 30,000 dilations in two large US database studies
- Dysphotopsia after LPI ranges in the single digits, depending on the study and definition. Studies disagree on whether temporal placement lowers the risk compared with superior.

## **YAG vitreolysis**

- Pooled data show a quality-of-life gain, with minimal side effects. Most studies were not randomized. Newer case reports describe vision loss, including a macular hole that needed surgery.
- AAO's 2025 guideline still calls the evidence insufficient.
- Vitreotomy clears floaters more completely but has risks. One large series found about 1% endophthalmitis and 2% retinal tear or detachment. Cataract is common afterward in phakic eyes.
- Rule out retinal tears first, and keep shots well clear of lens and retina.