

Supplemental eTable 1. Search Strategy

| Database | Keywords |
|----------|---|
| Pubmed | ((trabeculectomy[MeSH Terms] OR Trabeculectomy[Title/Abstract]) OR ((ocular hypertension[MeSH Terms] OR glaucoma[MeSH Terms])) AND ((Micropulse[Title/Abstract] OR Micropulse[Title/Abstract] OR MLT[Title/Abstract])) |
| Embase | ((trabeculectomy/exp OR trabeculectomy) AND ('micropulse'/exp OR micropulse) OR 'micropulse laser trabeculectomy' OR 'micropulse laser') AND ('glaucoma'/exp OR glaucoma OR 'intraocular hypertension'/exp OR 'intraocular hypertension') |
| Scopus | TITLE-ABS-KEY (trabeculectomy) AND (TITLE-ABS-KEY (micropulse) OR TITLE-ABS-KEY (mlt) OR (TITLE-ABS-KEY (micro) AND TITLE-ABS-KEY (pulse))) |

Supplemental eTable 2. Excluded Studies

| No. | Citation | Reason for Exclusion |
|-----|--|----------------------|
| 1 | Ng, A.; Mohite, A.; Lee, S.; Poole, N.; Tadros, M.; Majid, M.; Raj, A. Real world data on laser trabeculoplasty in the treatment of open-angle glaucoma: One year outcomes of micropulse diode (MDLT) vs selective (SLT). Clinical and Experimental Ophthalmology 2016;44 | Conference Abstract |
| 2 | Sugimoto, K. Micropulse laser trabeculoplasty and selective laser trabeculoplasty. Japanese Journal of Clinical Ophthalmology 2022;76(1):70-74 | Not in English |
| 3 | Gapsis, B.C.; Bickford, M.; Sharpe, R.A.; Das, S.; Kammerdeiner, L.; Nutaitis, M.J. Analysis of the relative efficacy of micropulse laser trabeculoplasty and selective laser trabeculoplasty. Investigative Ophthalmology and Visual Science 2018;59(9): | Conference Abstract |
| 4 | Dionisio, R.G.; German, O.L.; Patrianakos, T.; Giovengo, M. MLT vs SLT in the hispanic and African American population for treatment of open-angle glaucoma. Investigative Ophthalmology and Visual Science 2018;59(9): | Conference Abstract |
| 5 | Coombs, P.; Radcliffe, N.M. Outcomes of micropulse laser trabeculoplasty vs. selective laser trabeculoplasty. Investigative Ophthalmology and Visual Science 2014;55(13):1829 | Conference Abstract |
| 6 | Robin, A.; Thomas, C.; Darwish, D.; Giovengo, M.; Patrianakos, T. Post-operative one-hour intraocular pressure spikes and long term pressure efficacy in micropulse laser trabeculoplasty (MLT) vs selective laser trabeculoplasty (SLT). Investigative Ophthalmology and Visual Science 2020;61(7): | Conference Abstract |
| 7 | Sun, C.Q.; Ou, Y. Comparison of outcomes of micropulse laser trabeculoplasty versus selective laser trabeculoplasty. Investigative Ophthalmology and Visual Science 2018;59(9): | Conference Abstract |
| 8 | Thomas, C.; Darwish, D.; Giovengo, M.; Mannina, A. Post-operative one hour intraocular pressure spikes and long term pressure efficacy in micropulse laser trabeculoplasty (MLT) vs selective laser trabeculoplasty (SLT). Investigative Ophthalmology and Visual Science 2019;60(9): | Conference Abstract |
| 9 | Garip Kuebler, A.; Priglinger, S.; Reznicek, L. Micropulse Cyclophotocoagulation vs Selective Laser Trabeculoplasty: Effects on Corneal Endothelial Cells and Intraocular Pressure. Journal of Current Glaucoma Practice 2023;17(1):40-43 | Wrong Intervention |

Supplemental eTable 3. Selective Laser Trabeculoplasty Parameters of Included Studies

| Source | Energy Settings | Degrees |
|----------------------------------|--|----------------|
| Abramowitz et al. ⁹ | 0.6-2.0 mJ, titrated to noticeable bubble response | 360 |
| De León et al. ¹⁶ | 0.6 mJ and titrated by 0.1 mJ to the level of effect immediately below visible bubbles | 180 |
| Hirabayashi et al. ¹⁰ | 0.6-1.4 mJ, titrated to visible bubbles | 360 |
| Pimentel et al. ¹¹ | 0.6-1.4 mJ, titrated to barely noticeable bubbles | 360 |
| Robin et al. ¹² | 0.3-1.3 mJ, titrated to visible bubbles | >180 |
| Sun et al. ¹³ | 0.5-1.6 mJ, titrated to occasional visible bubble formation | 360 |

Supplemental eTable 4. Risk of Bias in Nonrandomized Studies of Interventions (ROBINS-I) Tool

| Study | Confounding | Selection of Participants | Classification of Interventions | Deviations from Interventions | Missing Data | Measurement of Outcomes | Selection of Results | Overall |
|----------------------------------|-------------|---------------------------|---------------------------------|-------------------------------|--------------|-------------------------|----------------------|----------|
| De León et al. ¹⁶ | Low | Low | Low | Low | Moderate | Moderate | Low | Moderate |
| Hirabayashi et al. ¹⁰ | Moderate | Low | Low | Low | Low | Moderate | Low | Moderate |
| Pimentel et al. ¹¹ | Low | Low | Low | Low | Low | Moderate | Low | Low |
| Robin et al. ¹² | Low | Moderate | Low | Low | Moderate | Moderate | Low | Moderate |
| Sun et al. ¹³ | Low | Low | Low | Low | Low | Moderate | Low | Low |

Supplemental eTable 5. Revised Cochrane risk-of-bias tool for randomized trials (RoB 2) Tool

| Study | Randomization | Deviation from Interventions | Missing Data | Measurement of Outcomes | Selection of Results | Overall |
|----------------------------------|---------------|------------------------------|--------------|-------------------------|----------------------|---------|
| Hirabayashi et al. ¹⁰ | Low | Some Concerns | Low | Low | Low | Low |

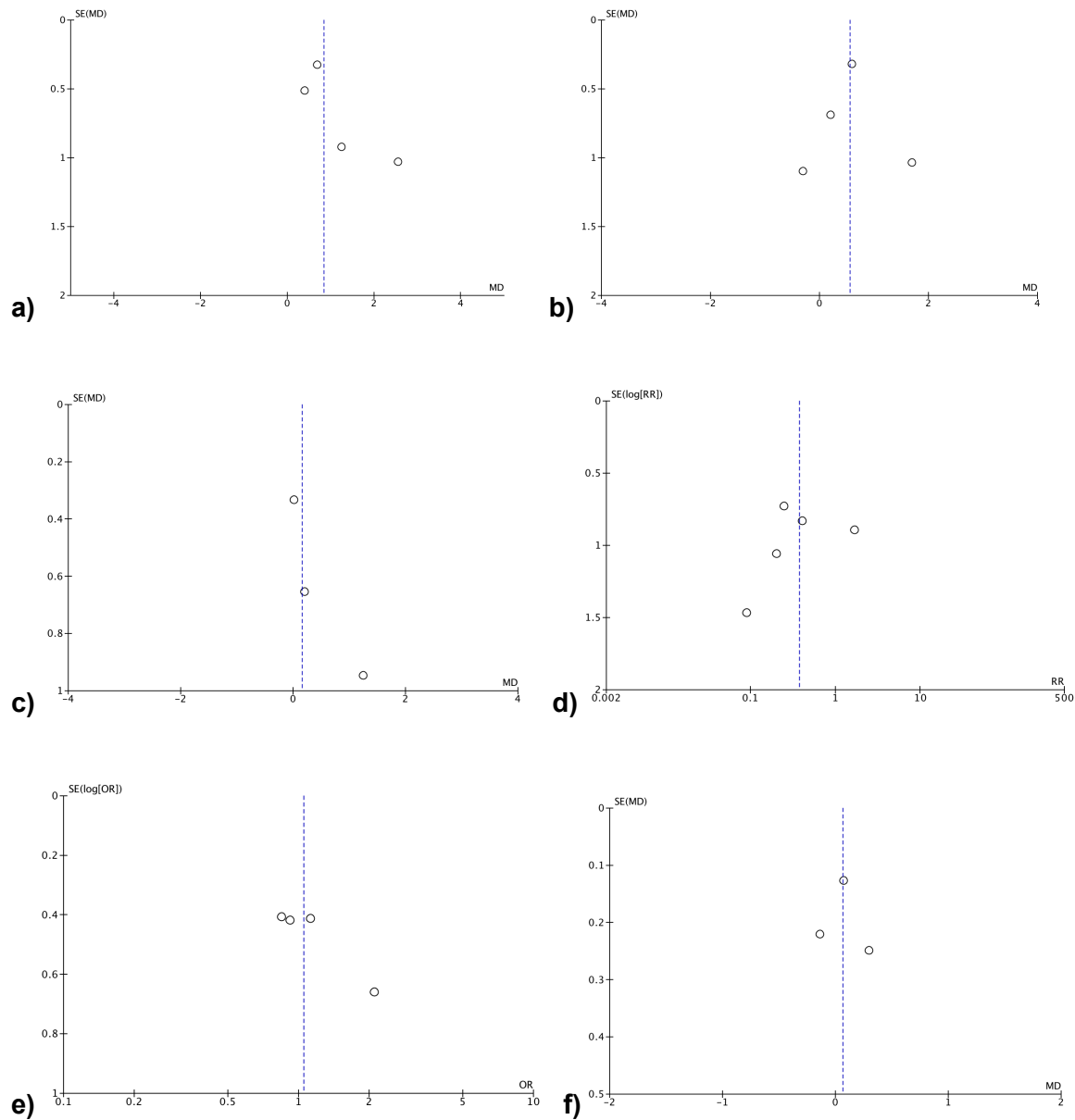
Supplemental eTable 6. Assessing the Quality of Pooled Evidence using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) Approach

| Outcomes | Pooled Outcomes (95% Confidence Interval) | Number of Participants (Studies) | Statistical Heterogeneity | Risk of Bias | Inconsistency | Indirectness | Imprecision | Quality of Evidence (GRADE) |
|---|--|--|-------------------------------|-----------------|---------------|--------------|----------------|-----------------------------------|
| 1 month mean IOP ^a change | WMD ^b : 0.83 (0.20, 1.47) | 345 (4 studies) | $I^2 = 22\%$ $p = 0.28$ | Serious | Not Serious | Not Serious | Not Serious | Very Low ⊕⊕⊕⊕ |
| 6 month mean IOP ^a change | WMD ^b : 0.55 (0.02, 1.08) | 366 (4 studies) | $I^2 = 0\%$ $p = 0.56$ | Serious | Not Serious | Not Serious | Not Serious | Very Low ⊕⊕⊕⊕ |
| 1 year mean IOP ^a change | WMD ^b : 0.16 (-0.40, 0.71) | 279 (3 studies) | $I^2 = 0\%$ $p = 0.47$ | Serious | Not Serious | Not Serious | Not Serious | Very Low ⊕⊕⊕⊕ |
| Rate of IOP ^a spikes | RR ^c : 0.37 (0.16, 0.89) | 526 (5 studies) | $I^2 = 13\%$ $p = 0.33$ | Serious | Serious | Not Serious | Not Serious | Very Low ⊕⊕⊕⊕ |
| Rate of treatment failure | RR ^c : 1.05 (0.68, 1.62) | 359 (4 studies) | $I^2 = 0\%$ $p = 0.68$ | Serious | Serious | Not Serious | Not Serious | Very Low ⊕⊕⊕⊕ |
| Mean reduction in topical medications | WMD ^b : 0.44 (-0.37, 1.25) | 310 (3 studies) | $I^2 = 92\%$ $p < 0.00001$ | Serious | Not serious | Not Serious | Serious | Very Low ⊕⊕⊕⊕ |

^aIntraocular Pressure; ^bWeighted Mean Difference; ^cRisk Ratio

Supplemental eFigure 1.

Funnel plots for meta-analyses of: **(a)** mean difference in IOP reduction at 1 month, **(b)** mean difference in IOP reduction at 6 months, **(c)** mean difference in IOP reduction at 1 year, **(d)** rate of IOP spikes, **(e)** rate of treatment failure, and **(f)** mean difference in medication reduction



Supplemental eFigure 2.

Forest plot meta-analysis comparing the mean reduction in intraocular pressure (IOP) between micropulse and selective laser trabeculoplasty at 1 month with subgroup analysis, in which studies are separated by wavelength of micropulse laser trabeculoplasty. Each study is shown by the last name of the first author and the mean difference (MD) with 95% confidence interval (CI). The summary mean difference and 95% CI is also shown (according to random-effect estimations). IV = inverse variance; SD = standard deviation. The green squares represent the effect sizes of the individual studies with the 95% confidence interval, and the diamonds represent the effect sizes of the pooled studies with the 95% confidence intervals.

