Category	Application / Claim	Clinical reference	Study design / parameters (summary)	Evidence relevance / limitations
Oral Surgery	Abscess drainage	Romanos & Nentwig (1999), Diode laser (980 nm) in oral and maxillofacial surgical procedures: clinical observations based on clinical applications.	Clinical observations/case series; 980 nm	Indirect support for soft-tissue incision/coagulation; not a dedicated abscess-drainage outcomes trial.
Oral Surgery	Tooth exposure	Effectiveness of Diode Laser in Intraoral Soft Tissue Surgeries – An Evaluative Study (2024).	Clinical evaluative study; 50 patients; 980 nm; includes tooth-exposure cases.	Directly relevant, but small procedure-specific subgroup.
Oral Surgery	Leukoplakia	Efficacy of Diode Laser for the Management of Potentially Malignant Disorders (2015).	Clinical study; 10 patients, including 5 leukoplakia cases; 980 nm.	Small clinical series; does not replace histopathology or establish oncologic efficacy.
Oral Surgery	Mucoceles	Effectiveness of Diode Laser in Intraoral Soft Tissue Surgeries – An Evaluative Study (2024).	Clinical study; 50 patients; 980 nm; includes 6 mucocele excisions.	Small subgroup; supports excision technique, not broad outcomes claims.
Oral Surgery	Hematoma	No direct 980 nm dental clinical reference identified in the preliminary list.	None identified.	General coagulation capability is not evidence for hematoma treatment.
Oral Surgery	Frenectomy	Maxillary labial frenectomy: a randomized, controlled comparative study of two blue (445 nm) and infrared (980 nm) diode lasers versus surgical scalpel (2024).	Randomized controlled study; 174 patients; includes 980 nm arm.	Direct clinical evidence for maxillary labial frenectomy.
Oral Surgery	Implant recovery	Romanos & Nentwig (1999), Diode laser (980 nm) in oral and maxillofacial surgical procedures: clinical observations based on clinical applications.	Clinical observations/case series; 980 nm; peri-implant soft-tissue procedures.	Relevant clinical experience; not necessarily a controlled implant-recovery trial.
Periodontology	Gingivectomy	Romanos & Nentwig (1999), Diode laser (980 nm) in oral and maxillofacial surgical procedures: clinical observations based on clinical applications.	Clinical observations/case series; 980 nm; gingival soft-tissue excision.	Relevant soft-tissue evidence; not a dedicated comparative gingivectomy trial.
Periodontology	Gingival plastic procedures	Mikhail et al. (2023), Assessment of clinical outcomes and patient response to gingival depigmentation using a scalpel, ceramic bur, and diode laser 980 nm.	Comparative clinical study; 24 patients; 980 nm.	Supports gingival depigmentation, not every type of gingival plastic surgery.
Periodontology	Periodontal pocket debridement	Nammour et al. (2021), Clinical Evaluation of Diode (980 nm) Laser-Assisted Nonsurgical Periodontal Pocket Therapy: A Randomized Comparative Clinical Trial and Bacteriological Study.	Randomized comparative clinical trial; 980 nm.	Directly relevant as adjunctive nonsurgical periodontal therapy.
Periodontology	Periodontal pocket debridement	Dukić et al. (2013), Clinical effectiveness of diode laser therapy as an adjunct to non-surgical periodontal treatment: a randomized clinical study.	Split-mouth randomized study; 35 patients; 980 nm.	Supports adjunctive use with scaling and root planing.
Periodontology	Periodontal pocket debridement	Caruso et al. (2008), Use of diode laser 980 nm as adjunctive therapy in the treatment of chronic periodontitis. A randomized controlled clinical trial.	Randomized controlled clinical trial; 980 nm.	Supports adjunctive periodontal therapy.
Periodontology	Periodontal pocket sterilization	Nammour et al. (2021), Clinical Evaluation of Diode (980 nm) Laser-Assisted Nonsurgical Periodontal Pocket Therapy: A Randomized Comparative Clinical Trial and Bacteriological Study.	Randomized trial; bacterial measurements; 980 nm.	Bacterial reduction is not proof of sterilization.
Implantology	Implant exposure	Hosseini Mehvar et al. (2024), Temperature Rise and Pain Following the Use of 810 and 980 nm Diode Lasers for Second-Stage Dental Implant Surgery: A Clinical Trial.	Clinical trial; 24 implants; 810/980 nm.	Directly relevant to implant uncovering; review temperature and pain findings.
Implantology	Implant exposure	Estrin & Romanos (2023), Dental Diode Lasers for Implant Uncovering: A Case Series.	Case series; 10 patients / 23 implants; 970/980 nm.	Clinical case-series support for implant uncovering.
Implantology	Peri-implantitis	Evaluation of adjunctive efficacy of diode laser in the treatment of peri-implant mucositis: a randomized clinical trial (2020).	Randomized study; 23 patients; 980 nm.	Supports adjunctive use in peri-implant mucositis; not necessarily established peri-implantitis treatment.
Implantology	Peri-implantitis	Treatment of peri-implantitis with diode laser or mucosal flap surgery: A clinical randomized controlled trial (2025).	Randomized controlled trial; 26 patients; 970 nm.	Relevant clinical evidence, but wavelength differs from 980 nm.
Pediatrics	Pulpotomy	Clinical and radiographic evaluation of diode laser pulpotomy on human primary teeth (2018).	Double-blind split-mouth RCT; 14 children / 40 teeth.	Clinical evidence; verify wavelength and settings in full text.
Pediatrics	Pulpotomy	Comparative evaluation of diode laser and simvastatin gel in pulpotomy of primary molars: A randomized clinical trial (2021).	RCT; 100 primary molars / 98 children.	Clinical evidence; exact wavelength/settings require full-text verification.
Pediatrics	Pulpotomy	Clinical efficacy of diode laser for pulpotomy in primary teeth: a meta-analysis of randomised controlled trials (2025).	Meta-analysis; 17 RCTs / 1,018 teeth.	Evidence synthesis; protocols vary; not device-specific.
Pediatrics	Pulpectomy	Antibacterial Effect of Diode Laser in Pulpectomy of Primary Teeth (2017).	Laboratory/antibacterial evaluation; 980 nm.	Not a clinical outcome trial; does not establish clinical pulpectomy or root-canal-disinfection claim.
Pediatrics	Pericoronitis	Wen et al. (2025), Adjunctive 980-nm Diode Laser Therapy in the Management of Acute Pericoronitis: A Prospective Randomized Controlled Trial.	Prospective RCT; 92 patients; 980 nm.	Direct clinical evidence for adjunctive acute pericoronitis management.
Pediatrics	Tooth exposure	Effectiveness of Diode Laser in Intraoral Soft Tissue Surgeries – An Evaluative Study (2024).	Clinical study; 50 patients; 980 nm; includes tooth exposure.	Small subgroup but directly relevant.
Laser Therapy	Aphthous ulcers	Different modalities for treatment of recurrent aphthous stomatitis: A Randomized clinical trial (2016).	RCT; 60 patients; diode laser; wavelength to verify.	Clinical evidence, but not confirmed as 980 nm.
Laser Therapy	Aphthous ulcers	Evaluation of diode laser versus topical corticosteroid in management of Behcet's disease-associated oral ulcers: a randomized clinical trial (2021).	RCT; 50 patients; 980 nm.	Relevant to Behçet-associated ulcers, not necessarily ordinary recurrent aphthous stomatitis.
Laser Therapy	Herpes	Efficacy of adjuvant photobiomodulation therapy in recurrent herpes labialis, a randomized clinical trial study (2024).	Randomized double-blind trial; 22 patients; 940 nm PBM with acyclovir.	Adjacent wavelength; not exact 980 nm evidence.
Laser Therapy	Herpes	Effect of laser phototherapy on recurring herpes labialis prevention: an in vivo study (2009).	Clinical study; 71 patients; 780 nm.	Broader PBM rationale; different wavelength.
Laser Therapy	Desensitizing	Evaluation of the effects of 980 and 810-nm high-level diode lasers in treating dentin hypersensitivity: A double-blinded randomized clinical trial (2022).	Double-blind RCT; 60 teeth in 7 patients; 980/810 nm.	Direct 980 nm clinical evidence, small patient count.
Laser Therapy	Intraoral therapy	Effect of intraoral photobiomodulation therapy on pain perception associated with local anaesthesia infiltration: a systematic review and meta-analysis of randomized controlled trials (2024).	Systematic review/meta-analysis; 17 RCTs; includes 900–980 nm protocols.	Broad PBM evidence; wavelength subgroup quality reported low to very low.
Laser Therapy	Intraoral therapy	Intraoral vs. extraoral photobiomodulation therapy for oral mucositis in head and neck cancer patients (2025).	Multicenter RCT; 58 patients; intraoral 660 nm, extraoral 810/980 nm protocol.	Does not establish intraoral 980 nm indication.

Reference / publication title	Study design / parameters (summary)			
Romanos & Nentwig (1999), Diode laser (980 nm) in oral and maxillofacial surgical procedures: clinical observations based o	Clinical observations/case series; 980 nm			
Effectiveness of Diode Laser in Intraoral Soft Tissue Surgeries – An Evaluative Study (2024).	Clinical evaluative study; 50 patients; 980 nm; includes tooth-exposure cases.			
Efficacy of Diode Laser for the Management of Potentially Malignant Disorders (2015).	Clinical study; 10 patients, including 5 leukoplakia cases; 980 nm.			
No direct 980 nm dental clinical reference identified in the preliminary list.	None identified.			
Maxillary labial frenectomy: a randomized, controlled comparative study of two blue (445 nm) and infrared (980 nm) diode	Randomized controlled study; 174 patients; includes 980 nm arm.			
Mikhail et al. (2023), Assessment of clinical outcomes and patient response to gingival depigmentation using a scalpel, cerar	Comparative clinical study; 24 patients; 980 nm.			
Nammour et al. (2021), Clinical Evaluation of Diode (980 nm) Laser-Assisted Nonsurgical Periodontal Pocket Therapy: A Ranc	Randomized comparative clinical trial; 980 nm.			
Dukić et al. (2013), Clinical effectiveness of diode laser therapy as an adjunct to non-surgical periodontal treatment: a rando	Split-mouth randomized study; 35 patients; 980 nm.			
Caruso et al. (2008), Use of diode laser 980 nm as adjunctive therapy in the treatment of chronic periodontitis. A randomize	Randomized controlled clinical trial; 980 nm.			
Hosseini Mehvar et al. (2024), Temperature Rise and Pain Following the Use of 810 and 980 nm Diode Lasers for Second-Sta	Clinical trial; 24 implants; 810/980 nm.			
Estrin & Romanos (2023), Dental Diode Lasers for Implant Uncovering: A Case Series.	Case series; 10 patients / 23 implants; 970/980 nm.			
Evaluation of adjunctive efficacy of diode laser in the treatment of peri-implant mucositis: a randomized clinical trial (2020).	Randomized study; 23 patients; 980 nm.			
Treatment of peri-implantitis with diode laser or mucosal flap surgery: A clinical randomized controlled trial (2025).	Randomized controlled trial; 26 patients; 970 nm.			
Clinical and radiographic evaluation of diode laser pulpotomy on human primary teeth (2018).	Double-blind split-mouth RCT; 14 children / 40 teeth.			
Comparative evaluation of diode laser and simvastatin gel in pulpotomy of primary molars: A randomized clinical trial (2021	RCT; 100 primary molars / 98 children.			
Clinical efficacy of diode laser for pulpotomy in primary teeth: a meta-analysis of randomised controlled trials (2025).	Meta-analysis; 17 RCTs / 1,018 teeth.			
Antibacterial Effect of Diode Laser in Pulpectomy of Primary Teeth (2017).	Laboratory/antibacterial evaluation; 980 nm.			
Wen et al. (2025), Adjunctive 980-nm Diode Laser Therapy in the Management of Acute Pericoronitis: A Prospective Randor	Prospective RCT; 92 patients; 980 nm.			
Different modalities for treatment of recurrent aphthous stomatitis: A Randomized clinical trial (2016).	RCT; 60 patients; diode laser; wavelength to verify.			
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Effect of intraoral photobiomodulation therapy on pain perception associated with local anaesthesia infiltration: a systemati	Systematic review/meta-analysis; 17 RCTs; includes 900–980 nm protocols.			
Intraoral vs. extraoral photobiomodulation therapy for oral mucositis in head and neck cancer patients (2025).	Multicenter RCT; 58 patients; intraoral 660 nm, extraoral 810/980 nm protocol.			