Evidence-Based Practice Group
Answers to Clinical Questions

Aerolase® System in Treating (Burn) Scar Tissue

A Rapid Systematic Review

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WorkSafeBC

About this report

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The Evidence-Based Practice Group was established to address the many medical and policy issues that WorkSafeBC officers deal with on a regular basis. Members apply established techniques of critical appraisal and evidence-based review of topics solicited from both WorkSafeBC staff and other interested parties such as surgeons, medical specialists, and rehabilitation providers.

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Objectives

- To determine the evidence on the efficacy/effectiveness of Aerolase® system in treating (burn) scar tissue.

Methods

- A comprehensive and systematic literature search was conducted on February 5, 2025.
- In order to develop relevant keywords to conduct the literature search, we began our review by exploring the websites of the company (https://aerolase.com/). This website provides the information on the device involved (including device name, how the device works as well as the type of lasers involved) and the information we collected from here were then translated into keywords that we employed in our literature search. It should be noted that the websites provided some references, but we did not assess the information provided in here since we found that these articles were not necessarily associated with the specification of the Aerolase® system.
- The formal systematic literature search was conducted on commercial medical literature databases, including Cochrane Database of Systematic Reviews (2005 to January 29, 2025), ACP Journal Club (1991 to January 2025), UK York University Database of Abstracts of Reviews of Effects (1st Quarter 2016), Cochrane Clinical Answers (January 2025), Cochrane Central Register of Controlled Trials (December 2024), UK NHS Health Technology Assessment (4th Quarter 2016), UK NHS Economic Evaluation Database (1st Quarter 2016), BIOSIS Previews (1969 to 2008), Embase (1974 to 2025 Week 05), Medline and Epub Ahead of Print, Medline In-Process, In-Data-Review & Other Non-Indexed Citations, Medline Daily and Medline (1946 to February 04, 2025), Joanna Briggs Institute Evidence Based Practice Database (Current to January 29, 2024), that are available through Ovid platform.
- Combination of keywords were employed in this literature search. These keywords, on which the majority were developed after exploring Aerolase® system websites, included:

    1. scars **OR** scar **OR** cicatrization **OR** scarring **OR** cicatrix **OR** keloid
    2. aerolase **OR** LightPod **OR** LightPodEra **OR** (LightPod Forte) **OR** (LightPod Allure) **OR** (LightPod Nova) **OR** (LightPod QT) **OR** (FriendlyLight) **OR** (TrulyPortable) **OR** (LightLance) **OR** (NeoClear) **OR** (Aerolase Laser Centers) **OR** NeoSkin **OR** (Neo Laser) **OR** (Neo V650) **OR** (650 Microsecond laser) **OR** (Micro-Q) **OR** (Neo elite) **OR** (era lite) **OR** (neo v)
    3. (Nd:YAG) **OR** (Er:YAG)
    4. #1 **AND** #2
    5. #1 **AND** #3

- No limitation, such as on the language or date of publication was implemented in search #4. However, on the expanded search (search #5), on which we looked into the efficacy/effectiveness of Nd:YAG or Er:YAG laser in treating scar tissue, we limited our search to those of systematic review only.
- A manual search was done on the references of the articles that were retrieved in full.

Results

- Search results:
    - Fifteen[1-15] published studies were identified from Search #4, which was specific for Aerolase® devices. Upon examination of the titles and abstracts of these

fifteen[1-15] studies, four[3,6,7,9] studies were thought to be relevant and were retrieved in full for further appraisal.

- One hundred sixty-eight[16-183] published studies were identified from Search #5, which was more general on the role Nd:YAG or Er:YAG laser in treating scar tissue and was limited to systematic review articles. Upon examination of the 168[16-183] published studies, we came across two[41,110] Cochrane Collaboration systematic reviews. Appreciating the high-quality systematic review that Cochrane reviews produced, we decided to include only these two[41,110] Cochrane Collaboration systematic reviews and adding two[113,136] more recent reviews of the same topics with the Cochrane reviews.
- Hence, there were eight[3,6,7,9,41,110,113,136] studies retrieved in full for further appraisal in this systematic review. Further appraisals on these eight[3,6,7,9,41,110,113,136] studies that were retrieved in full, showed that two[3,113] studies were not relevant to the objective of this systematic review and will not be discussed further.
- No further primary study was identified from manual searches.

<u>On lasers and scar tissue treatment:</u>

- The past 25 years have shown a wealth of novel laser and light devices that are employed for both medical and cosmetic purposes. In general, these lasers are classified according to their mechanism of action as ablative or non-ablative and fractional or non-fractional lasers184.
- Burn scars generally result in abnormal healing of the skin in more than 70% of cases owing to abnormalities in thickness, texture, erythema, and pigmentation. In selecting a laser to treat a burn scar, the burn physician must begin by evaluating the characteristics of the scar. Scar type (hypertrophic, flat or atrophic) and scar dyschromia (i.e. erythema) are the main factors that drive laser device selection. Body location and patient characteristics (normal skin color and comorbid conditions) help determine the settings of the selected laser device. In terms of thickness, the scars can be classified as keloids, hypertrophic and atrophic scars; while in terms of pigmentation, they can be classified as hypopigmented and hyperpigmented regarding adjacent healthy skin. Furthermore, erythema is common, especially in active and recent scars. The severity of the scar should be assessed before initiating and monitoring therapy. The most common approach is by employing the Vancouver Scar Scale (VSS) which evaluates vascularization, thickness, flexibility, and pigmentation. However, the Patient and Observer Scar Assessment Scale (POSAS) is considered the most complete, since it also includes subjective symptoms, such as pain and itching184,185.
- Pulsed Dye Lasers (PDLs), are non-ablative vascular lasers with wavelengths of 585 and 595 nm, are considered the laser of choice for treating the vascular component of burn scars and carry a low risk of adverse effects. However, Ablative Fractional Lasers (AFLs) are considered to be the cornerstone of burn scar treatment. The most common are the 10600-nm carbon dioxide laser and the 2940-nm erbium-doped yttrium aluminum garnet (Er:YAG) laser. These lasers act by generating columns of thermal damage in the epidermis and dermis which causes collagen remodeling, hence, improving the thickness, flexibility, and color of the scars185. Non-ablative fractional lasers (NAFLs) cause heat damage in the dermis in the form of columns of coagulation without ablation, leaving the epidermis intact. This mechanism makes it possible to reduce surface damage and the degree of heat applied to the skin. The most commonly used NAFLs is the 1540-nm or 1550-nm Er:glass laser185.

    - It should be noted that the parameters applied in laser treatments vary considerably and are adjusted to the characteristics of the scar and the patient's skin phototype. For example, more hypertrophic scars tend to be treated at higher energy levels but with lower densities to compensate for excessive thermal damage. The most common parameters used are intermediate-high powers (15-30 W) and low densities (5%-15%). Darker skin phototypes require more conservative approaches in order to prevent hyperpigmentation. Treatment is usually administered in a mean of 3-5 sessions over 4-12 weeks period.

- A small (n=6) case series (level of evidence 4. Appendix 1), investigating the efficacy of The LightPod Erbium:YAG laser (from Aerolase®) in different skin types for various indications was reported by Gordon et al[6]. This study was performed by employing an Er:YAG laser, with wavelength of 2940 nm and a pulse duration of 0.3 ms with a spot size of 2 and 6 mm and a repetition rate of 1.5 Hz. One male and five females were recruited for laser resurfacing on which four participants were treated for fine lines and dyspigmentation, one for acne scars and one for resurfacing combined with the removal of cutaneous lesions. Their skin types varied from I to IV with a mean age of 52 years old. The authors reported that all six participants tolerated the procedure very well with average discomfort level of 2 (out of 5 levels). Side effects such as erythema lasted an average of 6 days with no complications such as hypo- or hyper-pigmentation, infection or scarring identified. The authors further reported that significant improvement in surface texture, dyschromia, mottled pigmentation, shallowness, fine lines and wrinkles, and skin porosity was seen after treatment at 1 and 3 months. It should be noted that it is not clear how these six participants were selected, and it was not clear how the outcomes were assessed.
- In an abstract only format, Khatri and Moiseev reported a small (n=32) case series (level of evidence 4. Appendix 1) on the application of 300-microsecond Pulsed Er:YAG 2940nm Laser by Aerolase® in treating scar tissue in early and late stages. Eleven male and 21 female participants with skin type II–III were recruited. Twenty-five participants had scars due to mechanical trauma, six with acne scars and one due to chemical burn. Participants were divided into two groups, the first group (n=11) with scars in their early stages (about 14 days post trauma) and the second group (n=21) with scars more than one year old. No keloid scars were included in this study. The laser protocol included spot size of 6mm, a fluence of 5 J/cm2, and a rep rate of 1.5 HZ. Treatments were performed with 14-day interval until a physical leveling of the scar was observed. Each participants had an average of 3.6 treatments. The authors further reported that 30% rated the results as excellent, 50% as good, and 20% as satisfactory. It should be noted that it is not clear how these 32 participants were selected, and it was not clear how the outcomes were assessed.
- A small (n=10) case series (level of evidence 4. Appendix 1), investigating the effectiveness of Nd:YAG 1064nm laser (LightPod Neo, Aerolase Corporation) to treat both active acne and acne scars was reported by Kipervas and Martinho[9]. It should be noted the publication is an abstract only publication. In this study, five male and five female participants, with skin type I-IV and a mean age of 30 received a series of three treatments, spaced 2–3 weeks apart, targeted facial areas of active acne lesions and acne scars in their upper and lower face. The authors reported that the laser treatment, with a 0.65 millisecond pulsed Nd:YAG 1064nm laser generating 15,000 watts per pulse, achieved clearance of more than 90% of the acne on average, and more than a 50% reduction of the acne scars on average. Further, of the ten participants, two rated their satisfaction as high and two rated it as very high. It should be noted that it is not clear how these ten participants were selected, and it was not clear how the outcomes were assessed
- A high quality (clear objective, clear inclusion/exclusion criteria, clear critical appraisal method, clear data analysis and presentation while employing only high-level evidence) Cochrane review (level of evidence 1. Appendix 1), with a literature search date up to

November 2015, assessing interventions for treating acne scars was reported by Abdel Hay et al[41]. Twenty-four randomized controlled trials (RCTs) with 789 adult participants aged 18 years or older were included in this systematic review. The authors reported that for the outcome 'Participant-reported scar improvement', one study using a fractional laser was more effective in producing scar improvement than non-fractional non-ablative laser at week 24 (very low-quality evidence); fractional lasers showed comparable scar improvement to fractional radiofrequency in one study at week eight (very low-quality evidence) and was comparable to combined chemical peeling with skin needling in a different study at week 48 (very low-quality evidence). Furthermore, the authors reported that for the outcome 'Investigator-assessed short-term adverse events', fractional laser was associated with a reduced risk of hyperpigmentation than non-fractional non-ablative laser (very low-quality evidence).

- Another high quality (clear objective, clear inclusion/exclusion criteria, clear critical appraisal method, clear data analysis and presentation while employing only high-level evidence) Cochrane review (level of evidence 1. Appendix 1), with a literature search date up to March 2021, assessing the effects of laser therapy for treating hypertrophic and keloid scars was reported by Leszczynski et al[110]. Fifteen RCTs involving 604 participants (children and adults) with study sample sizes ranging from 10 to 120 participants (mean 40.3) were included in this systematic review.

  For laser versus no treatment, the authors found:

  - Low-certainty evidence suggesting there may be more hypertrophic and keloid scar improvement (that is scars are less severe) in 585-nm pulsed-dye laser (PDL) -treated scars compared with no treatment.
  - It is unclear whether non-ablative fractional laser (NAFL) impacts on hypertrophic scar severity when compared with no treatment (very low-certainty evidence).
  - It is unclear whether fractional carbon dioxide (CO2) laser impacts on hypertrophic and keloid scar severity compared with no treatment (very low-certainty evidence).

  For laser versus other treatments, the authors were uncertain that treatment with 585-nm PDL impacts on hypertrophic and keloid scar severity compared with intralesional corticosteroid triamcinolone acetonide (TAC), intralesional Fluorouracil (5-FU) or combined use of TAC plus 5-FU (very low-certainty evidence). The authors were also uncertain whether erbium laser impacts on hypertrophic scar severity when compared with TAC (very low-certainty evidence). The authors concluded that there was insufficient evidence to support or refute the effectiveness of laser therapy for treating hypertrophic and keloid scars. The available data were also insufficient to perform a more accurate analysis on treatment-related adverse effects related to laser therapy. The authors also found heterogeneity in the intervention protocols, conflicting results, study design issues and small sample sizes. Hence, suggesting further high-quality trials, with validated scales and core outcome sets should be developed.
- A low-medium quality (unclear inclusion/exclusion criteria, inappropriate critical appraisal checklists employed, combining results from different study design, majority of primary studies were of low quality as reported and unclear clinical significance of the reported outcomes) systematic review (level of evidence 1. Appendix 1) with a literature search up to September 2017, investigating outcomes on specific objective characteristics (i.e., erythema, pigmentation, height, and pliability) of the different laser systems in treating hypertrophic scarring and keloid was reported by Oosterhoff et al[136]. Overall, there were 30 primary studies involving 26 non-randomized, prospectives and retrospectives, studies and four RCTs were included in this systematic review.

Summary

- At present, there are some low level (small case series, level of evidence 4. Appendix 1) and of low-quality (potential selection bias and potential measurement bias) evidence on the efficacy of Aerolase® laser system in treating several skin conditions, including scar.
- At present, there are some high level and high-quality evidence on the uncertainty of the efficacy of laser treatment in treating scars and keloids.
- At present, there is some evidence on the heterogeneity of the primary studies reporting the efficacy of laser treatment on scars/keloids that may affect the outcomes.

References

1. Carniol P.J., Woolery-Lloyd H, Zhao A.S., Murray K. Laser Treatment for Ethnic Skin. Facial Plastic Surgery Clinics of North America. 18(1) (pp 105-110), 2010. Date of Publication: February 2010.
2. Cerqueira M.T., Da Silva L.P., Santos T.C. et al. Co-cultured adipose tissue cells within a gellan gum-hyaluronic acid matrix promote vascularization of full-thickness wounds. Journal of Tissue Engineering and Regenerative Medicine. Conference: TERM STEM 2013: Nanotechnology as a Tool for Improving Tissue Engineering and Regenerative Medicine. Porto Portugal. 7(SUPPL. 1) (pp 28), 2013. Date of Publication: October 2013.
3. Chee S.-N., Lowe P, Lim A. Laser skin resurfacing: A patient-centred classification based on downtime. Australasian Journal of Dermatology. 56(3) (pp 186-191), 2015. Date of Publication: 01 Aug 2015.
4. Dai Y.C., Hu K.K., Li J et al. Application of umbilical cord blood and umbilical cord-derived mesenchymal stroma cells to skin injury in mice and human. Experimental Hematology. Conference: 38th Annual Scientific Meeting of the Society for Hematology and Stem Cells, ISEH. Athens Greece. 37(9 Suppl. 1) (pp S55), 2009. Date of Publication: September 2009.
5. Goldberg D, Hussain M. 1064nm laser for the treatment of facial telangiectasia: Can this be done with efficacy and safety?. Lasers in Surgery and Medicine. Conference: 32nd Annual Conference of the American Society for Laser Medicine and Surgery, ASLMS 2012. Kissimmee, FL United States. 44(SUPPL. 24) (pp 4), 2012. Date of Publication: March 2012.
6. Gordon J, Khan M.H., Khatri K.A. Erbium:YAG Laser Resurfacing Using a Novel Portable Device. Facial Plastic Surgery Clinics of North America. 15(2) (pp 185-189), 2007. Date of Publication: May 2007.
7. Khatri K, Moiseev B. Clinical efficacy and patient satisfaction in laser scar revision using a 300-microsecond pulsed Er:Yag 2940 nm laser. Lasers in Surgery and Medicine. Conference: 36th Annual Conference of the American Society for Laser Medicine and Surgery, ASLMS 2016. Boston, MA United States. 48(4) (pp 436), 2016. Date of Publication: April 2016.
8. Khatri K, Moiseev V, Gordon J. Skin rejuvenation on skin types I to V using a 300-Microsecond Pulsed Er: YAG 2940nm laser in sub-ablative mode. Lasers in Surgery and Medicine. Conference: 34rd Annual Conference of the American Society for Laser Medicine and Surgery, ASLMS 2014. Phoenix, AZ United States. 46(SUPPL. 25) (pp 11), 2014. Date of Publication: March 2014.
9. Kipervas Y, Martinho T. Treatment of active acne and acne scars with a single laser modality, using a novel 0.65 millisecond pulsed Nd:YAG 1064nm laser. Lasers in Surgery and Medicine. Conference: 32nd Annual Conference of the American Society for Laser Medicine and Surgery, ASLMS 2012. Kissimmee, FL United States. 44(SUPPL. 24) (pp 67), 2012. Date of Publication: March 2012.
10. Lapa Pedreira D.A., Quintero R.A., Accio G.L., Espin Garcia Caldini E.T., Nascimento Saldiva P.H. Neoskin development in the fetus with the use of a three-layer graft: An animal model for in utero closure of large skin defects. Journal of Maternal-Fetal and Neonatal Medicine. 24(10) (pp 1243-1248), 2011. Date of Publication: October 2011.
11. Maytesiuan L, Khrienko A, Doronkina O.L., Khatri K.A. Laser skin rejuvenation of female external genital organs with a 650 microsecond Nd:YAG 1064nm laser. Lasers in Surgery and Medicine. Conference: 39th Annual Conference of the American Society for Laser Medicine and Surgery, Inc.. Denver, CO United States. 51(Supplement 31) (pp S13-S14), 2019. Date of Publication: 01 Mar 2019.
12. Prazdnikov EN, Evsyukova ZA. [Role of neodymium laser in surgery: stimulation of

postoperative surgical wounds healing. Results of clinical studies]. [Russian]. Khirurgiia. 1(4):93-104, 2024.
13. Wang Z, Jiao X, Xing X. An experimental study on the construction of composite graft with epithelia and fibroblasts on collagen sponge. [Chinese]. Zhonghua shao shang za zhi = Zhonghua shaoshang zazhi = Chinese journal of burns. 17(2) (pp 108-110), 2001. Date of Publication: Apr 2001.
14. Yanez M, Rincon J, Dones A, De Maria C, Gonzales R, Boland T. In vivo assessment of printed microvasculature in a bilayer skin graft to treat full-thickness wounds. Tissue engineering. Part A.. 21. 1(1-2):224-33, 2015 Jan.
15. Yu J, Wang M.-Y., Tai H.-C., Cheng N.-C. Cell sheet composed of adipose-derived stem cells demonstrates enhanced skin wound healing with reduced scar formation. Acta Biomaterialia. 77(pp 191-200), 2018. Date of Publication: 01 Sep 2018.
16. Clinical study on efficacy and safety of 1064-nm Nd: YAG laser in treating atrophic acne scars. 2020. [No additional source data available.].
17. A clinical trial to compare two procedures for acne scars on face - microdermabrasion and Er: YAG laser. 2016. [No additional source data available.].
18. Combined Intense Pulsed Light (IPL) With Fractional Erbium: YAG Laser Ablation in Scar Prevention. 2021. [No additional source data available.].
19. Comparative study of the ND: YAG picosecond laser and CO2 fractional laser for acne scars. 2021. [No additional source data available.].
20. Comparison of Dual-mode ER: YAG Laser in Patients With Long Keloid/Hypertrophic Scars. 2015. [No additional source data available.].
21. Comparison of Fractional Neodymiun-doped Yttrium Aluminium Garnet (Nd: YAG) 1,064-nm Picosecond Laser and Fractional 1,550-nm Erbium Fiber Laser in Facial Acne Scar Treatment. 2018. [No additional source data available.].
22. Comparison of Picosecond Lasers vs. Ablative Fractional Er: YAG Lasers in Treating Atrophic Scar. 2023. [No additional source data available.].
23. A comparison of standard laser with micropulse laser for the treatment of diabetic macular oedema. 2017. [No additional source data available.].
24. Comparison of the Efficacy of Fractional Er: YAG Laser for Acne Scar. 2013. [No additional source data available.].
25. Effect of laser in treatment of acne scars. 2022. [No additional source data available.].
26. Efficacy and saftey of fractional Er: YAG versus microneedling in treatment of facial rhytides. 2018. [No additional source data available.].
27. Efficacy of Fractional Er: YAG Laser in Lupus Erythematosus Scars. 2021. [No additional source data available.].
28. Efficacy of laser in skin rejuvination. 2016. [No additional source data available.].
29. Evaluation of Non-Ablative Laser for Treatment of Direct Brow Lift Scars. 2013. [No additional source data available.].
30. Laser Treated Scars and Optical Coherence Tomography (OCT). 2021. [No additional source data available.].
31. NdYag Laser for Acne Keloidalis Nuchae. 2008. [No additional source data available.].
32. Onabotulinum Toxin A in Direct Brow Lift. 2020. [No additional source data available.].
33. A single-blinded, split-face study for comparative evaluation on the efficacy and stability of the treatment of solar lentigo by picosecond Nd: YAG laser(Picocare 450). 2017. [No additional source data available.].
34. Study comparing two treatments for superficial lower limb small varicose veins. 1900. [No additional source data available.].
35. Study of the Effect of Fractional co2 Laser Versus Q Switched: ndYAG Laser in the Treatment of Acanthosis Nigricans. 2021. [No additional source data available.].
36. Study on the Effect of NdYag Laser for the Treatment of Hidradenitis Suppurativa. 2007. [No additional source data available.].

37. Therapeutic Efficacy of Erbium: YAG Laser in Postpartum Patients With Episiotomy Scars. 2023. [No additional source data available.].
38. Treatment of Post-Surgical Scars With Traditional Ablative Er: YAG Versus Fractional Ablative Er: YAG. 2015. [No additional source data available.].
39. Treatment of solar lentigo with PDL laser. 2017. [No additional source data available.].
40. Abate PF, Abramovich A, Polack MA, Macchi RL. Effect of laser and acid treatments on human dentin. Comunicaciones Biologicas. 14(1):9-17, 1996.
41. Abdel Hay Rania, Shalaby Khalid, Zaher Hesham et al. Interventions for acne scars [Systematic Review]. Cochrane 2016; (4).
42. ABERGEL R P, DWYER R M, MEEKER C A, LASK G, KELLY A P, UITTO J. LASER TREATMENT OF KELOIDS A CLINICAL TRIAL AND AN IN-VITRO STUDY WITH NEODYMIUM YTTRIUM-ALUMINUM GARNET LASER. Lasers in Surgery & Medicine. 4(3):291-6, 1984.
43. ABFELBERG D B, SMITH T, LASH H, WHITE D N, MASER M R. PRELIMINARY REPORT ON USE OF THE NEODYMIUM-YAG LASER IN PLASTIC SURGERY. Lasers in Surgery & Medicine. 7(2):189-98, 1987.
44. Akahane T, Kurokawa Y, Yaegashi H, Satomi S, Takahashi T. Experimental ablation of emphysematous rat lung with Nd:YAG laser: Lung changes studied by histopathology and SEM. Tohoku Journal of Experimental Medicine. 185(2):119-29, June, 1998.
45. Al-Dhalimi MA, Al-Janabi MH. Split lesion randomized comparative study between long pulsed Nd: YAG laser 532 and 1,064 nm in treatment of facial port-wine stain. Lasers in surgery and medicine. Vol.48(9):852-858p, 2016.
46. Alavi S, Abolhasani E, Asadi S, Nilforoushzadeh M. Combination of Q-Switched Nd: YAG and Fractional Erbium: YAG Lasers in Treatment of Melasma: a Randomized Controlled Clinical Trial. Journal of lasers in medical sciences. Vol.8(1):1-6p, 2017. Iran.
47. Aldahan A, Mlacker S, Shah V et al. Comparing the 585/1064nm multiplex laser to the 585nm pulsed dye laser in the treatment of surgical scars. Lasers in surgery and medicine. Vol.49, pp.23-24, 2017-04-05 to 2017-04-09. 37th American Society for Laser Medicine and Surgery Annual Conference on Energy-Based Medicine and Science, ASLMS 2017. San Diego, CA. United States. Netherlands John Wiley and Sons Inc.
48. Alexiades M. Randomized, Double-Blind, Split-Face Study Evaluating Fractional Ablative Erbium: YAG Laser-Mediated Trans-Epidermal Delivery of Cosmetic Actives and a Novel Acoustic Pressure Wave Ultrasound Technology for the Treatment of Skin Aging, Melasma, and Acne Scars. Journal of drugs in dermatology. Vol.14(11):1191-1198p, 2015.
49. Allen RD, Brown J, Zwick H, Schuschereba ST, Lund J, Stuck BE. The effect of laser induced macular injuries on choroidal perfusion in the nonhuman primate retina. IOVS. 42(4):S690, March 15, 2001.
50. Anand N [Author, Reprint Author, E-mail: nitin.anand@lycos.co.uk], Atherley C. Deep sclerectomy augmented with mitomycin C. Eye (Basingstoke). 19(4):442-50, APR 05.
51. ANAND V K, GALANTICH P T. ADVANTAGES OF ENDOSCOPIC LASER ARYTENOIDECTOMY USING NEODYMIUM-YAG LASER SCALPEL. Journal of Voice. 4(2):165-8, 1990.
52. Artzi O, Koren A. The use of picosecond laser for the treatment of a variety of dermatological conditions-a retrospective photographic review. Journal of the Dermatology Nurses' Association. Vol.12(2): 2019-06-11 to 2019-06-15. 24th World Congress of Dermatology. Milan. Italy. Netherlands Lippincott Williams and Wilkins.
53. Balevi A, Ustuner P, Ozdemir M. Use of Er: YAG for the treatment of recalcitrant facial verruca plana. Journal of dermatological treatment. Vol.28(4):368-371p, 2017. United Kingdom Taylor and Francis Ltd.
54. Barbaric Jelena, Abbott Rachel, Posadzki Pawel et al. Light therapies for acne [Systematic Review]. Cochrane 2016; (9).
55. Bayliss JM, Ng SWai, Waugh Norman, Azuara-Blanco Augusto. Laser peripheral iridoplasty for chronic angle closure [Systematic Review]. Cochrane 2021; (3).
56. Bernstein EF, Ferreira M, Anderson D. A pilot investigation to subjectively measure

treatment effect and side-effect profile of non-ablative skin remodeling using a 532 nm, 2 ms pulse-duration laser. Journal of cosmetic and laser therapy. Vol.3(3):137-141p, 2001.
57. Bittar J, Decker M, Damstetter E. TREATMENT OF INJECTION NECROSIS RELATED COMPLEX SCARRING WITH ER:YAG FRACTIONAL RESURFACING LASER-ASSISTED DELIVERY OF TRIAMCINOLONE AND INTRALESIONAL TRIAMCINOLONE INJECTIONS. Lasers in Surgery and Medicine. Conference: 42nd Annual Conference of the American Society for Laser Medicine and Surgery, ASLMS 2023. Phoenix, AZ United States. 55(Supplement 35) (pp S103-S104), 2023. Date of Publication: 01 Mar 2023.
58. Bochmann Frank, Azuara-Blanco Augusto. Interventions for late trabeculectomy bleb leak [Systematic Review]. Cochrane 2012; (9).
59. Bordewijk EM, Ng YKa, Rakic Lidija et al. Laparoscopic ovarian drilling for ovulation induction in women with anovulatory polycystic ovary syndrome [Systematic Review]. Cochrane 2020; (2).
60. Cannarozzo G, Morini C, Sannino M, Campolmi P, Nistico SP. Postablative laser management: mupirocin 2% vs. Gentamicin 0.1% ointment. Esperienze dermatologiche. Vol.17(2):71-79p, 2015. Italy Edizioni Minerva Medica.
61. Chavan S, Chavan D. Efficacy of dual mode quasi-long pulsed & q switched 1064nm Nd: YAG laser as an adjuvant in management of active acne vulgaris. Journal of the Dermatology Nurses' Association. Vol.12(2): 2019-06-11 to 2019-06-15. 24th World Congress of Dermatology. Milan. Italy. Netherlands Lippincott Williams and Wilkins.
62. Chen KH, Tam KW, Chen IF et al. A systematic review of comparative studies of CO2 and erbium:YAG lasers in resurfacing facial rhytides (wrinkles). [Review]. Journal of Cosmetic & Laser Therapy. 19. 1(4):199-204, 2017 Aug.
63. Chen XE, Liu J, Bin Jameel AA et al. Combined effects of long-pulsed neodymium-yttrium-aluminum-garnet laser, diprospan and 5-fluorouracil in the treatment of keloid scars. Experimental and therapeutic medicine. Vol.13(6):3607-3612p, 2017. Greece Spandidos Publications.
64. Chng QWei, Samuel Miny, Naidoo Khimara et al. Topical treatments and skin-resurfacing techniques for skin ageing [Protocol]. Cochrane 2021; (8).
65. Cices A, Dover J.S., Labadie J.G. Changes in melanocytic nevi treated with laser hair removal: A systematic review. Lasers in Surgery and Medicine. 55(7) (pp 617-624), 2023. Date of Publication: 01 Sep 2023.
66. Damkerngsuntorn W, Rerknimitr P, Asawanonda P et al. 15788 The standardized extract of Centella asiatica, ECa 233, enhances post-laser resurfacing wound healing on the face: a split-face, double-blind, randomized, placebo-controlled trial. Journal of the American Academy of Dermatology. Vol.83(6):AB159p, 2020-03-20 to 2020-03-24. AAD Annual Meeting. Denver. United States. Netherlands Mosby Inc.
67. Damkerngsuntorn W, Rerknimitr P, Panchaprateep R et al. The Effects of a Standardized Extract of Centella asiatica on Postlaser Resurfacing Wound Healing on the Face: a Split-Face, Double-Blind, Randomized, Placebo-Controlled Trial. Journal of alternative and complementary medicine (New York, N.Y.). Vol.26(6):529-536p, 2020. United States NLM (Medline).
68. Damkjaer W Mathias, Geiker Katja, Lokkegaard Ellen, Schroll JB. Vaginal energy-based devices for vulvovaginal dryness [Protocol]. Cochrane 2023; (10).
69. Deng D, Zhang X, Yao Z. Er: YAG fractional laser combining BBL treatment for pediatric hypertrophic scars. Journal of the Dermatology Nurses' Association. Vol.12(2): 2019-06-11 to 2019-06-15. 24th World Congress of Dermatology. Milan. Italy. Netherlands Lippincott Williams and Wilkins.
70. Dube P, Albakaa M, Aldhalimi M, Khalaf F. EVALUATING THE ROLE OF DIFFERENT TYPES OF LASER THERAPY IN BECKERS NEVUS TREATMENT. Journal of investigative medicine. Vol.70(7):1576p, 2022-03-03 to 2022-03-04. 2022 Midwest Clinical and Translational Research Meeting of Central Society for Clinical and Translational Research, CSCTR and

the Midwestern Section of the American Federation for Medical Research, MWAFMR. Chicago, IL. United States. Netherlands BMJ Publishing Group.
71. Dunford Louise, Clifton AV, Stephenson John et al. Interventions for hyperhidrosis [Protocol]. Cochrane 2022; (2).
72. Elfiky S-AM, Shokeir H, Elbasiouny MS, Samy N. Combined fractional erbuim-yag laser with botulinum toxin-a versus botulinum toxin-a alone for the treatment of hypertrophic scars and keloids. Systematic reviews in pharmacy. Vol.12(3):115-120p, 2021. India EManuscript Technologies.
73. Fanjul-Velez F [Author, Reprint Author, E-mail: ffanjul@teisa.unican.es], Arce-Diego JL [Author, E-mail: jlarce@teisa.unican.es]. Modeling thermotherapy in vocal cords novel laser endoscopic treatment. Lasers in Medical Science. 23(2):169-77, APR 2008.
74. Faurschou A, Olesen AB, Leonardi-Bee J, Haedersdal M. Lasers or light sources for treating port-wine stains. [Review]. Cochrane Database of Systematic Reviews. . 1(11):CD007152, 2011 Nov 09.
75. Fried NM [Reprint author, E-mail: nfried@jhmi.edu]. Potential applications of the erbium:YAG laser in endourology. Journal of Endourology. 15(9):889-94, November, 2001.
76. Fried NM, Walsh JTJr. Cryogen spray cooling during laser tissue welding. Physics in Medicine & Biology. 45(3):753-63, March, 2000.
77. Gagrani Meghal, Garg Itika, Ghate Deepta. Surgical interventions for primary congenital glaucoma [Systematic Review]. Cochrane 2020; (8).
78. GEGGEL H S, MAZA C E. ANTERIOR STROMAL PUNCTURE WITH THE NEODYMIUM-YAG LASER. Investigative Ophthalmology & Visual Science. 31(8):1555-9, 1990.
79. Geisler A.N., Eber A, Kim K, Arndt K.A. Lasers for the treatment of eyebrow microblading and cosmetic tattoo pigment: a review of the literature. Lasers in Medical Science. 38(1) (no pagination), 2023. Article Number: 256. Date of Publication: 01 Dec 2023.
80. Gilbert S, McBurney E. Use of valacyclovir for herpes simplex virus-1 (HSV-1) prophylaxis after facial resurfacing: a randomized clinical trial of dosing regimens. Dermatologic surgery. Vol.26(1):50-54p, 2000.
81. Giniatullin RU, Kozel AI, Ryazantsev AA. Experimental-morphological and clinical results of adenohypophysis laser destruction. Arkhiv Patologii. 62(2):37-40, March-April, 2000.
82. Goldman MP, Manuskiatti W. Combined laser resurfacing with the 950-microsec pulsed CO2 + Er: YAG lasers. Dermatologic surgery. Vol.25(3):160-163p, 1999. United States Blackwell Publishing Ltd.
83. Grevelink JM, Duke D, Van Leeuwen RL, Gonzalez E, Decoste SD, Anderson RR. Laser treatment of tattoos in darkly pigmented patients: Efficacy and side effects. Journal of the American Academy of Dermatology. 34(4):653-6, 1996.
84. Gupta AK, Paquet Maryse, Villanueva Elmer, Brintnell William. Interventions for actinic keratoses [Systematic Review]. Cochrane 2019; (10).
85. Haedersdal Merete, Gotzsche PC. Laser and photoepilation for unwanted hair growth [Systematic Review]. Cochrane 2009; (4).
86. Ho WS, Ying SY, Chan PC, Chan HH. Use of onion extract, heparin, allantoin gel in prevention of scarring in chinese patients having laser removal of tattoos: a prospective randomized controlled trial. Dermatologic surgery. Vol.32(7):891-896p, 2006.
87. Hu S, Atmakuri M, Rosenberg J. Adverse Events of Nonablative Lasers and Energy-Based Therapies in Subjects with Fitzpatrick Skin Phototypes IV to VI: A Systematic Review and Meta-Analysis. Aesthetic Surgery Journal. 42. 1(5):537-47, 2022 04 12.
88. Ingram JR, Woo Pick-Ngor, Chua LSer et al. Interventions for hidradenitis suppurativa [Systematic Review]. Cochrane 2017; (2).
89. Jamjanya S, Vejjabhinanta V, Tanasombatkul K, Phinyo P. Comparative effectiveness among available treatments in difficult-to-treat port-wine stains (PWS): a Network Meta-Analysis of observational evidence. Journal of Dermatological Treatment. 34(1) (no

pagination), 2023. Article Number: 2231582. Date of Publication: 2023.
90. Jangir VK, Ghiya BC, Mehta RD et al. Fractional Erbium YAG Laser Resurfacing Versus 20% Trichloroacetic Acid Chemical Peeling in the Treatment of Acne Scars: a Comparative Study. Journal of cutaneous and aesthetic surgery. Vol.16(4):319-324p, 2023. India Wolters Kluwer Medknow Publications.
91. Jo JY, Suh DH, Lee SJ, Ryu HJ. 51337 Photothermal therapy using ethosome gold nanoparticles for Asian acne patients: a Preliminary study. Journal of the American Academy of Dermatology. Vol.91(3):AB280p, 2024. Netherlands Elsevier Inc.
92. Kampmeier J, Klafke M, Hibst R, Wierschin S, Schuette E, Steiner R. Update of Er:YAG-laser ab externo sclerostomy: 2-years report. Klinische Monatsblaetter fuer Augenheilkunde. 208(4):218-23, 1996.
93. Kao Y.-C., Lin D.-Z., Kang Y.-N., Chang C.-J., Chiu W.-K., Chen C. Efficacy of Laser in Hair Removal: A Network Meta-analysis. Journal of Cosmetic and Laser Therapy. 25(1-4) (pp 7-19), 2023. Date of Publication: 2023.
94. KARBE E, KOENIGSMANN G, BECK R. EXPERIMENTAL LIVER AND KIDNEY SURGERY WITH CARBON DI OXIDE CARBON MON OXIDE HOLMIUM AND NEODYMIUM LASERS CUTTING EFFECT HEMOSTASIS HISTO PATHOLOGY AND HEALING. Langenbecks Archiv fuer Chirurgie. 351(3):179-92, 1980.
95. Karmisholt KE, Haerskjold A, Karlsmark T, Waibel J, Paasch U, Haedersdal M. Early laser intervention to reduce scar formation - a systematic review. [Review]. Journal of the European Academy of Dermatology & Venereology. 32. 1(7):1099-110, 2018 Jul.
96. Katori H, Tsukuda M. Nd:YAG laser treatment for adult hypopharyngeal haemangioma. Journal of Laryngology & Otology. 118(10):814-7, October 2004.
97. KEARNEY J J, COHEN H B, STUCK B E, RUDD G P, BERESKY D E, WERTZ F D. LASER INJURY TO MULTIPLE RETINAL FOCI. Lasers in Surgery & Medicine. 7(6):499-502, 1987.
98. KECKSTEIN G, TUTTLIES F, WOLF A S, LAURITZEN C, STEINER R. LINEAR SALPINGOTOMY FOR TREATMENT OF NONRUPTURED ECTOPIC PREGNANCY. Zentralblatt fuer Gynaekologie. 112(7):445-50, 1990.
99. Keller GS, Razum NJ, Elliott S, Parks J. Small incision laser lift for forehead creases and glabellar furrows. Archives of Otolaryngology Head & Neck Surgery. 119(6):632-5, 1993.
100. Kelly KM, Nelson JS, Lask GP, Geronemus RG, Bernstein LJ. Cryogen spray cooling in combination with nonablative laser treatment of facial rhytides. Archives of Dermatology. 135(6):691-4, June, 1999.
101. Kessler R, Rohrschneider K, Goelz S, Bille JF, Voelcker HE, Kruse FE. Ab-interno trabeculotomy using a Nd:YAG-picosecond-laser. IOVS. 41(4):S501, March 15, 2000.
102. Khedr MM, Mahmoud WH, Sallam FA, Elmelegy N. Comparison of Nd: YAG Laser and Combined Intense Pulsed Light and Radiofrequency in the Treatment of Hypertrophic Scars: a Prospective Clinico-Histopathological Study. Annals of plastic surgery. Vol.84(5):518-524p, 2020. United States NLM (Medline).
103. KIEFHABER P. INDICATIONS FOR ENDOSCOPIC NEODYMIUM-YAG LASER TREATMENT IN THE GASTROINTESTINAL TRACT TWELVE YEARS' EXPERIENCE. Scandinavian Journal of Gastroenterology Supplement. 22(139):53-63, 1987.
104. Kilmer SL, Lee MS, Grevelink JM, Flotte TJ, Anderson RR. The Q-switched neodymium-YAG laser effectively treats tattoos: A controlled, dose-response study. Archives of Dermatology. 129(8):971-8, 1993.
105. Klein A, Buschmann M, Babilas P, Landthaler M, Baumler W. Indocyanine green-augmented diode laser therapy vs. long-pulsed Nd: YAG (1064 nm) laser treatment of telangiectatic leg veins: a randomized controlled trial. British journal of dermatology. Vol.169(2):365-373p, 2013. United Kingdom Blackwell Publishing Ltd.
106. Kravvas G, Veitch D, Al-Niaimi F. The use of energy devices in the treatment of striae: a systematic literature review. Journal of Dermatological Treatment. 30. 1(3):294-302, 2019 May.

107. Le Pillouer PA, Casanova D. Scarring process after induced dermabrasion. Wound Repair & Regeneration. 10(2):113-5, March-April, 2002.
108. Lee SJ, Kang JM, Chung WS, Kim YK, Kim HS. Ablative non-fractional lasers for atrophic facial acne scars: a new modality of erbium: YAG laser resurfacing in Asians. Lasers in medical science. Vol.29(2):615-619p, 2014.
109. Leszczynski R, da Silva CA, Pinto ACPN, Kuczynski U, da Silva EM. Laser therapy for treating hypertrophic and keloid scars. [Review]. Cochrane Database of Systematic Reviews. 9:CD011642, 2022 09 26. 1.
110. Leszczynski Rafael, da Silva AP Carolina, Pinto CAna, Kuczynski Uliana, da Silva MK Edina. Laser therapy for treating hypertrophic and keloid scars [Systematic Review]. Cochrane 2022; (9).
111. Limtong P, Pratumchart N, Triyangkulsri K, Iamsumang W, Chayavichitsilp P. Comparison of fractional 1,064-nm Nd: yag picosecond laser and fractional 1,550-nm erbium fiber laser in facial acne scar treatment-a split-face, single-blinded, randomized controlled trial. Journal of the Dermatology Nurses' Association. Vol.12(2): 2019-06-11 to 2019-06-15. 24th World Congress of Dermatology. Milan. Italy. Netherlands Lippincott Williams and Wilkins.
112. Lippert BM, Werner JA. Comparison of carbon dioxide and neodymium: Yttrium-aluminum-garnet lasers in surgery of the inferior turbinate. Annals of Otology Rhinology & Laryngology. 106(12):1036-42, Dec., 1997.
113. Liu F, Zhou Q, Tao M, Shu L, Cao Y. Efficacy and safety of CO2 fractional laser versus Er:YAG fractional laser in the treatment of atrophic acne scar: A meta-analysis and systematic review. Journal of Cosmetic Dermatology. 23. 1(9):2768-78, 2024 Sep.
114. Liu J, Zhou BR, Wu D, Xu Y, Luo D. Sequential delivery of intense pulsed light and long-pulse 1.064-nm neodymium-doped yttrium aluminum garnet laser shows better effect in the treatment of facial telangiectasias than using them separately. Giornale italiano di dermatologia e venereologia. Vol.152(1):1-7p, 2017. Italy Edizioni Minerva Medica.
115. Lu Z-C, Chen, Li-Gui, Zhang, Yi-Yin. Dilatation of anastomotic stricture by Nd:YAG laser beam under endoscopy. Zhonghua Zhongliu Zazhi. 16(6):451-3, 1994.
116. Madhuri B. Comparison of the efficacy of long pulsed nd: yag laser (Lpnd) and electrocautery in the treatment of verruca vulgaris. Journal of the Dermatology Nurses' Association. Vol.12(2): 2019-06-11 to 2019-06-15. 24th World Congress of Dermatology. Milan. Italy. Netherlands Lippincott Williams and Wilkins.
117. Majdabadi A, Abazari M. Analysis of laser-fat interaction through comparing 980 nm diode laser with 1064 nm ND: YAG laser. Journal of skin and stem cell. Vol.1(1):2014. Netherlands KOWSAR Medical Publishing Company.
118. Manuskiatti W, Iamphonrat T, Wanitphakdeedecha R, Eimpunth S. Comparison of fractional erbium-doped yttrium aluminum garnet and carbon dioxide lasers in resurfacing of atrophic acne scars in Asians. Dermatologic surgery. Vol.39(1 Pt 1):111-120p, 2013.
119. Maranda EL, Akintilo L, Hundley K et al. Laser therapy for the treatment of pearly penile papules. [Review]. Lasers in Medical Science. 32. 1(1):243-8, 2017 Jan.
120. MATHUS-VLIEGEN E M H, TYTGAT G N J. NEODYMIUM-YAG LASER PHOTOCOAGULATION IN COLORECTAL ADENOMA EVALUATION OF ITS SAFETY USEFULNESS AND EFFICACY. Gastroenterology. 90(6):1865-73, 1986.
121. Matthews BG, Thomson CE, Harding MP, McKinley JC, Ware RS. Treatments for Morton's neuroma [Systematic Review]. Cochrane 2024; (2).
122. McDaniel DH, Lord J, Ash K, Newman J. Combined CO2/erbium: YAG laser resurfacing of peri-oral rhytides and side-by-side comparison with carbon dioxide laser alone. Dermatologic surgery. Vol.25(4):285-293p, 1999.
123. MCGOURAN R C M, GALLOWAY J M. A LASER-INDUCED SCAR AT THE CARDIA INCREASES THE YIELD PRESSURE OF THE LOWER ESOPHAGEAL SPHINCTER. Gastrointestinal Endoscopy. 36(5):439-43, 1990.

124. Mehta AC, Lee FYW, Cordasco EM, Kirby T, Eliachar I, De Boer G. Concentric tracheal and subglottic stenosis: Management using the neodymium-YAG laser for mucosal sparing followed by gentle dilatation. Chest. 104(3):673-7, 1993.
125. Montalvo DA. Synergy between the treatment of erbium laser fractional and the application of plasma rich platelet to the facial skin redensification. Lasers in surgery and medicine. Vol.51, pp.S58, 2019-03-27 to 2019-03-31. 39th Annual Conference of the American Society for Laser Medicine and Surgery, Inc., ASLMS 2019. Denver, CO. United States. Netherlands Wiley Blackwell.
126. Moutray Tanya, Evans JR, Lois Noemi, Armstrong DJ, Peto Tunde, Azuara-Blanco Augusto. Different lasers and techniques for proliferative diabetic retinopathy [Systematic Review]. Cochrane 2018; (3).
127. Mueller A [Author, Reprint Author, E-mail: a.mueller@med.uni-jena.de], Gottschall R, Paulsen F. A case of chondronecrosis of the epiglottis after laser chordotomy. European Archives of Oto-Rhino-Laryngology. 259(10):524-6, November 2002.
128. Muschter R, Hessel S, Hofstetter A et al. Interstitial laser coagulation of benign prostatic hyperplasia. Urologe Ausgabe A. 32(4):273-81, 1993.
129. Nakano CU Luis, Cacione DG, Baptista-Silva CC Jose, Flumignan LG Ronald. Treatment for telangiectasias and reticular veins [Systematic Review]. Cochrane 2021; (10).
130. Narayanan A, Bhari N, Sreenivas V, Sharma VK, Sethuraman G. A split-tattoo randomized Q-switched neodymium-doped yttrium-aluminium-garnet laser trial comparing the efficacy of a novel three-pass, one-session method with a conventional method in the treatment of blue/black tattoos in darker skin types. Clinical and experimental dermatology. Vol.47(1):125-128p, 2022. United Kingdom NLM (Medline).
131. Newman JB, Lord JL, Ash K, McDaniel DH. Variable pulse erbium: YAG laser skin resurfacing of perioral rhytides and side-by-side comparison with carbon dioxide laser. Lasers in surgery and medicine. Vol.26(2):208-214p, 2000.
132. Nguyen J, Chapman LW, Korta DZ, Zachary CB. Laser treatment of cutaneous angiokeratomas: A systematic review. [Review]. Dermatologic Therapy. 30(6), 2017 Nov. 1.
133. NISHIZONO H. MORPHOLOGICAL STUDY OF THE WOUNDS APPROXIMATED WITH NEODYMIUM-YAG LASER IRRADIATION. Practica Otologica Kyoto. 84(12):1769-82, 1991.
134. Novoa Monica, Baselga Eulalia, Beltran Sandra et al. Interventions for infantile haemangiomas of the skin [Systematic Review]. Cochrane 2018; (4).
135. Ohshiro T, Maeda T. Application of 830 nm diode laser LLLT as successful adjunctive therapy of hypertrophic scars and keloids. Laser Therapy. 4(4):155-68, 1993.
136. Oosterhoff TCH, Beekman VK, van der List JP, Niessen FB. Laser treatment of specific scar characteristics in hypertrophic scars and keloid: A systematic review. Journal of Plastic, Reconstructive & Aesthetic Surgery: JPRAS. 74. 1(1):48-64, 2021 01.
137. Osman MA, Shokeir HA, Fawzy MM. Fractional Erbium-Doped Yttrium Aluminum Garnet Laser Versus Microneedling in Treatment of Atrophic Acne Scars: a Randomized Split-Face Clinical Study. Dermatologic surgery. Vol.43 Suppl 1, pp.S47-S56, 2017. United States Lippincott Williams and Wilkins (E-mail: agents@lww.com).
138. Osman MAR, Kassab AN. Carbon dioxide laser versus erbium: YAG laser in treatment of epidermal verrucous nevus: a comparative randomized clinical study. Journal of dermatological treatment. Vol.28(5):452-457p, 2017.
139. Ostertag JU, Quaedvlieg PJ, van der Geer S et al. A clinical comparison and long-term follow-up of topical 5-fluorouracil versus laser resurfacing in the treatment of widespread actinic keratoses. Lasers in surgery and medicine. Vol.38(8):731-739p, 2006.
140. Ostertag JU, Quaedvlieg PJF, Kerckhoffs FEMJ et al. Congenital naevi treated with erbium : YAG laser (Derma K) resurfacing in neonates: clinical results and review of the literature. British Journal of Dermatology. 154(5):889-95, MAY 2006.
141. Papadavid E [Author, Reprint Author, E-mail: epapad@otenet.gr], Katsambas A. Lasers for

facial rejuvenation: A review. International Journal of Epidemiology. 32(3):480-7, June 2003.
142. Park JH, Hwang ES, Kim SN, Kye YC. Er: YAG laser treatment of verrucous epidermal nevi. Dermatologic surgery. Vol.30(3):378-381p, 2004.
143. Pfeiffer D, Moosdorf R, Svenson RH et al. Epicardial neodymium:YAG laser photocoagulation of ventricular tachycardia without ventriculotomy in patients after myocardial infarction. Circulation. 94(12):3221-5, 1996.
144. Prezzano J, Velez MW. An anhydrous gel with tripeptides and hexapeptides following hybrid fractional laser resurfacing for acne scars. Lasers in surgery and medicine. Vol.53(SUPPL 33):S44p, 2021-05-15 to 2021-05-16. 40th Annual Conference of the American Society for Laser Medicine and Surgery, ASLMS 2021. Virtual. Netherlands John Wiley and Sons Inc.
145. PUTTERMAN A M. SCALPEL NEODYMIUM-YAG LASER IN OCULOPLASTIC SURGERY. American Journal of Ophthalmology. 109(5):581-4, 1990.
146. Reinholz M, Schwaiger H, Heppt MV et al. Comparison of Two Kinds of Lasers in the Treatment of Acne Scars. Facial plastic surgery. Vol.31(5):523-531p, 2015. United States.
147. Rostan EF, Fitzpatrick RE, Goldman MP. Laser resurfacing with a long pulse erbium: YAG laser compared to the 950 ms pulsed CO(2) laser. Lasers in surgery and medicine. Vol.29(2):136-141p, 2001.
148. Rouse Benjamin, Le JT, Gazzard Gus. Iridotomy to slow progression of visual field loss in angle-closure glaucoma [Systematic Review]. Cochrane 2023; (1).
149. Sabry HH, Hegazy MS, Ahmed E, Salem RM. Q-Switched 1064-nm Nd: YAG laser versus fractional carbon dioxide laser for post acne scarring: a split-face comparative study. Photodermatology, photoimmunology & photomedicine. Vol.38(5):465-470p, 2022. United Kingdom John Wiley and Sons Inc.
150. Sarnoff D, Gotkin R. Evaluation of the safety and efficacy of dual treatment with an ablative fractional CO2 laser and a non-ablative 1440nm Nd: YAG laser for atrophic facial acne scars. Lasers in surgery and medicine. Vol.44, pp.11-12, 2012-04-18 to 2012-04-22. 32nd Annual Conference of the American Society for Laser Medicine and Surgery, ASLMS 2012. United States. Wiley-Liss Inc.
151. Sarvipour N, Akbari Z, Shafie'ei M, Jamali M, Ahmadzade M, Ahramiyanpour N. Lasers for the treatment of erythema, dyspigmentation, and decreased elasticity in macular acne scars: a systematic review. Lasers in Medical Science. 37(9) (pp 3321-3331), 2022. Date of Publication: 01 Dec 2022.
152. SCHRODER T, HUKKI J, CASTREN M, PUOLAKKAINEN P, LIPASTI J. COMPARISON OF SURGICAL LASERS AND CONVENTIONAL METHODS IN SKIN INCISIONS. Scandinavian Journal of Plastic & Reconstructive Surgery & Hand Surgery. 23(3):187-90, 1989.
153. Schuschereba ST [Author, Reprint Author], Brown JJr [Author, Reprint Author], Clarkson DR [Author, Reprint Author], Valo LM [Author, Reprint Author], Stuck BE [Author, Reprint Author]. Bridging Choroidal Neovascular Complexes Between Two Nd:YAG Laser-induced Retinal Lesions are Facilitated by Coalescence of Large and Confined Subretinal Hemorrhages. ARVO Annual Meeting Abstract Search & Program Planner. 2002:Abstract No. 1259, 2002.
154. Sharon E, Levi A, Lapidoth M, Snast I. Laser and light therapy for pediatric hair removal: a systematic review. Lasers in Medical Science. 38. 1(1):156, 2023 Jul 04.
155. Sharon E, Snast I, Lapidoth M et al. Laser Treatment for Non-Melanoma Skin Cancer: A Systematic Review and Meta-Analysis. American Journal of Clinical Dermatology. 22. 1(1):25-38, 2021 Jan.
156. Shipman WD 3rd, Williams MN, Suozzi KC, Eisenstein AS, Dover JS. Efficacy of laser hair removal in hidradenitis suppurativa: A systematic review and meta-analysis. [Review]. Lasers in Surgery & Medicine. 56. 1(5):425-36, 2024 07.
157. Singer AJ, Regev R, Weeks R, Tlockowski DS. Laser-assisted anesthesia prior to

intravenous cannulation in volunteers: a randomized, controlled trial. Academic emergency medicine. Vol.12(9):804-807p, 2005.
158. Szeimies RM [Author, Reprint Author, E-mail: rolf-markus.szeimies@klinik.uni-regensburg.de], Karrer S. Towards a more specific therapy: targeting nonmelanoma skin cancer cells. British Journal of Dermatology. 154(Suppl. 1):16-21, MAY 2006.
159. TAN O T, MORELLI J. LASER TREATMENT OF CONGENITAL VASCULAR BIRTHMARKS. Pediatrician. 18(3):204-10, 1991.
160. TATE L P JR, SWEENEY C L, CULLEN J M et al. TRANSENDOSCOPIC NEODYMIUM-YAG LASER IRRADIATION IN HORSES. American Journal of Veterinary Research. 50(5):786-91, 1989.
161. TAWAKOL M E, PEYMAN G A, ABOU-STEIT M. WOUND HEALING STRENGTH A COMPARATIVE STUDY OF STAINLESS STEEL BLADE EXCISIONS AND CONTACT NEODYMIUM-YAG LASER EXCISIONS. International Ophthalmology. 12(2):147-50, 1988.
162. TAWAKOL M E, PEYMAN G A, ONCEL M, KHOOBEHI B. EXTERNAL LIMBAL SCLEROSTOMY WITH CONTACT NEODYMIUM-YAG LASER VERSUS SURGICAL KNIFE. International Ophthalmology. 13(3):205-8, 1989.
163. Tenzel PA, Patel K, Erickson BP et al. Split face evaluation of long-pulsed non-ablative 1,064 nm Nd: YAG laser for treatment of direct browplasty scars. Lasers in surgery and medicine. Vol.48(8):742-747p, 2016.
164. TETSUMOTO K, KUECHLE M, NAUMANN G O H. LATE HISTOPATHOLOGICAL FINDINGS OF NEODYMIUM-YAG LASER IRIDOTOMIES IN HUMANS. Archives of Ophthalmology. 110(8):1119-23, 1992.
165. Tsai TH, Chang YJ. Pulsed-dye laser for treatment of sebaceous hyperplasia. Journal of the American Academy of Dermatology. Vol.66(4):AB215p, 2012-03-16 to 2012-03-20. 70th Annual Meeting of the American Academy of Dermatology. United States. Elsevier.
166. Tzellos Thrasivoulos, Kyrgidis Athanassios, Mocellin Simone, Chan An-Wen, Pilati Pierluigi, Apalla Zoe. Interventions for melanoma in situ, including lentigo maligna [Systematic Review]. Cochrane 2016; (1).
167. van Zuuren EJ, Fedorowicz Zbys, Carter Ben, van der Linden MD Mireille, Charland Lyn. Interventions for rosacea [Systematic Review]. Cochrane 2017; (5).
168. Varkarakis IM, Inagaki T, Allaf ME et al. Comparison of erbium:yttrium-aluminum-garnet and holmium:yttrium-aluminum-garnet lasers for incision of urethra and bladder neck in an in vivo porcine model. Urology. 65(1):191-5, January 2005.
169. Vivek V, Jayasree RS [Author, Reprint Author, E-mail: jayashreemenon@gmail.com], Balan A, Sreelatha KT, Gupta AK. Three-year follow-up of oral leukoplakia after neodymium: yttrium aluminum garnet (Nd : YAG) laser surgery. Lasers in Medical Science. 23(4):375-9, OCT 2008.
170. Vrijman C, van Drooge AM, Limpens J et al. Laser and intense pulsed light therapy for the treatment of hypertrophic scars: a systematic review. [Review]. British Journal of Dermatology. 165. 1(5):934-42, 2011 Nov.
171. Wang T, Chen D, Yang J, Ma G, Yu W, Lin X. Safety and efficacy of dual-wavelength laser (1064 + 595 nm) for treatment of non-treated port-wine stains. Journal of the European Academy of Dermatology and Venereology : JEADV. Vol.32(2):260-264p, 2018. United Kingdom Blackwell Publishing Ltd (E-mail: customerservices@oxonblackwellpublishing.com).
172. Wang Z, Pankratov MM, Shapshay SM. Endoscopic laser-assisted reshaping of collapsed tracheal cartilage: A laboratory study. Annals of Otology Rhinology & Laryngology. 105(3):176-81, 1996.
173. Wanitphakdeedecha R, Manuskiatti W, Siriphukpong S, Chen TM. Treatment of punched-out atrophic and rolling acne scars in skin phototypes III, IV, and V with variable square pulse erbium: yttrium-aluminum-garnet laser resurfacing. Dermatologic surgery. Vol.35(9):1376-1383p, 2009.

174. Watson SL, Leung Vannessa. Interventions for recurrent corneal erosions [Systematic Review]. Cochrane 2018; (7).
175. WEBER H, ENDERS S, COPPENRATH K, MURRAY A B, SCHAD H, MENDLER N. EFFECTS OF NEODYMIUM-YAG LASER COAGULATION OF MYOCARDIUM ON CORONARY VESSELS. Lasers in Surgery & Medicine. 10(2):133-9, 1990.
176. Weinstein Velez MC. AN ANHYDROUS GEL with TRIPEPTIDE/HEXAPEPTIDE PRE and POST HYBRID FRACTIONAL LASER RESURFACING for ACNE SCARS. Lasers in surgery and medicine. Vol.54(SUPPL 34):S20-S21p, 2022-04-27 to 2022-04-30. 41st Annual Conference of the American Society for Laser Medicine and Surgery, ASLMS 2022. San Diego, CA. United States. Netherlands John Wiley and Sons Inc.
177. Williams NM, Gurnani P, Long J et al. Comparing the efficacy and safety of Q-switched and picosecond lasers in the treatment of nevus of Ota: a systematic review and meta-analysis. Lasers in Medical Science. 36. 1(4):723-33, 2021 Jun.
178. Woo DK, Treyger G, Henderson M, Huggins RH, Jackson-Richards D, Hamzavi I. Prospective Controlled Trial for the Treatment of Acne Keloidalis Nuchae With a Long-Pulsed Neodymium-Doped Yttrium-Aluminum-Garnet Laser. Journal of cutaneous medicine and surgery. Vol.22(2):236-238p, 2018.
179. Wu SZ, Muddasani S, Alam M. A Systematic Review of the Efficacy and Safety of Microneedling in the Treatment of Melasma. Dermatologic Surgery. 46. 1(12):1636-41, 2020 12.
180. Xie L, Wang P, Ding Y, Zhang L. Comparative frenectomy with conventional scalpel and dual-waved laser in labial frenulum. World journal of pediatric surgery. Vol.5(1):2022. United Kingdom BMJ Publishing Group.
181. Yaghmai D, Garden JM, Bakus AD, Massa MC. Comparison of a 1,064 nm laser and a 1,320 nm laser for the nonablative treatment of acne scars. Dermatologic surgery. Vol.31(8 Pt 1):903-909p, 2005.
182. Yang MU, Yaroslavsky AN, Farinelli WA et al. Long-pulsed neodymium: yttrium-aluminum-garnet laser treatment for port-wine stains. Journal of the American Academy of Dermatology. Vol.52(3 Pt 1):480-490p, 2005.
183. Yu P, Yu N, Diao W, Yang X, Feng Y, Qi Z. Comparison of clinical efficacy and complications between Q-switched alexandrite laser and Q-switched Nd:YAG laser on nevus of Ota: a systematic review and meta-analysis. Lasers in Medical Science. 31(3) (pp 581-591), 2016. Date of Publication: 01 Apr 2016.
184. Willows BM, Ilyas M, Sharma A. Laser in the management of burn scars. Burns. 2017 Nov;43(7):1379-1389. doi: 10.1016/j.burns.2017.07.001. Epub 2017 Aug 4.
185. Altemir A, Boixeda P. Laser Treatment of Burn Scars. Actas Dermosifiliogr. 2022 Nov-Dec;113(10):938-944. English, Spanish. doi: 10.1016/j.ad.2022.06.018. Epub 2022 Aug 11.

Appendix 1

WorkSafeBC — Evidence-Based Practice Group levels of evidence (adapted from 1-6)

1	Experimental, randomized controlled trial (RCT), systematic review RTCs with or without meta-analysis.
2	Evidence from controlled trials without randomization (quasi-experimental studies) or systematic reviews of observational studies.
3	Evidence from cohort or case-control analytic studies, preferably from more than 1 centre or research group.
4	Evidence from comparisons between times or places with or without the intervention. Dramatic results in uncontrolled experiments.
5	Opinions of respected authorities, based on clinical experience, descriptive studies or reports of expert committees based on scientific evidence.

References

1. Canadian Task Force on the Periodic Health Examination: The periodic health examination. CMAJ. 1979;121:1193-1254.
2. Houston TP, Elster AB, Davis RM et al. The US Preventive Services Task Force Guide to Clinical Preventive Services, Second Edition. AMA Council on Scientific Affairs. American Journal of Preventive Medicine. May 1998;14(4):374-376.
3. Scottish Intercollegiate Guidelines Network (2001). SIGN 50: a guideline developers' handbook. SIGN. Edinburgh.
4. Canadian Task Force on Preventive Health Care. New grades for recommendations from the Canadian Task Force on Preventive Health Care. CMAJ. Aug 5, 2003;169(3):207-208.
5. (2014). Canadian task force on preventive health care procedure manual. Downloaded from https://canadiantaskforce.ca/methods/ in May 12, 2022.
6. (2021). US Preventive Services Task Force. Procedure Manual. Downloaded from https://www.uspreventiveservicestaskforce.org/uspstf/about-uspstf/methods-and-processes/procedure-manual , in May 12 2022.