

GentleMax Pro Plus®

755 nm and 1064 nm lasers for hair removal, vascular and benign pigmented lesions, and skin treatments.

eBook



 **CANDELA®**
Science. Results. Trust.



GentleMax Pro Plus®



Dear Reader,

On behalf of Candela® we would like to thank you for your interest in our GentleMax Pro Plus® system.

Built on a foundation of over 20 years of clinically successful outcomes across all skin types, the GentleMax Pro Plus® system is a recognized leader in laser hair removal. However, it also offers the ability to treat additional indications, like wrinkles, benign pigmented lesions and vascular lesions, with its dual wavelength versatility. Attract new patients with one treatment indication and rely upon the others as trusted tools to keep patients coming back, successfully laying the groundwork for a lifelong patient-provider relationship.

In this eBook, we provide you with the most important information regarding this device, from technology overview to the results clinical experts achieved with their patients. Please note that users should refer to the user manuals for complete device information and maintenance.

Patient Satisfaction. Practice Success. Proven Results.

The Candela Marketing Team

THE GENTLE FAMILY OF PRODUCTS IS A WORLD LEADER
IN LASER HAIR REMOVAL WITH:

 **20+**
YEARS OF
EXPERTISE

 **14,500+**
SYSTEMS INSTALLED*

 **88**
COUNTRIES

#1
RECOMMENDED
BRAND¹

*Gentle Pro series installed since 2011. Gentle family of lasers have been sold since 1998.



Give your patients the very best with the latest innovation in our Gentle Pro series

For over 20 years, Gentle Pro devices have been the industry leading laser hair removal systems trusted by dermatologists and aestheticians around the globe to successfully treat patients of all skin types. With a larger treatment spot, shorter pulse durations, higher repetition rates and significantly more energy, the GentleMax Pro Plus platform is providing practitioners with even more treatment versatility and positive outcomes across a variety of indications. Build your reputation for excellence on ours.

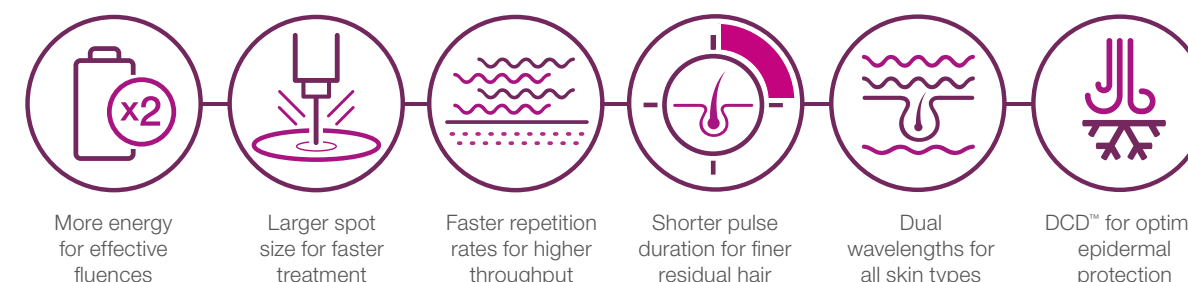


The leader in hair removal and so much more

Treat more patients for more indications

- Permanent hair reduction for patients of all skin types, including those with thinner/finer hair²
- Benign pigmented lesions
- Diffuse redness and facial vessels
- Spider and leg veins
- Wrinkles
- Vascular lesions
 - Angiomas and hemangiomas
 - Venous lake
 - Port wine stains
- Onychomycosis

Practice Advantages



The GentleMax Pro Plus offers features you can count on to drive patient satisfaction and competitive distinction – translating to practice growth and high ROI.

Treatment Efficiency

Higher fluences on 20-26 mm spots, a larger 26 mm spot size, and shorter 2 ms pulse durations combine for more efficient and successful treatment of hair.²

- Faster treatment times for greater throughput
- Increased flexibility treating small and large areas of the body
- Improved results on fine hair

Practice growth

Treat more patients in less time with higher repetition rates and large spot sizes.

- Greater throughput for increased profitability
- Delegate treatments to staff with reliable outcomes
- Treatment versatility beyond laser hair removal

Practice satisfaction

Keep patients coming back and spreading the word by providing treatments they can trust.

- Fast, convenient and comfortable treatments
- Long-lasting results
- Confidence in consistent outcomes

Treatment Versatility

A complete solution for your practice



GentleMax Pro Plus lasers provide the flexibility of having multiple laser types.

The industry standard in laser hair removal for over two decades.



- 755nm alexandrite ideal for lighter skin types.



- 1064nm Nd:YAG ideal for darker skin types.



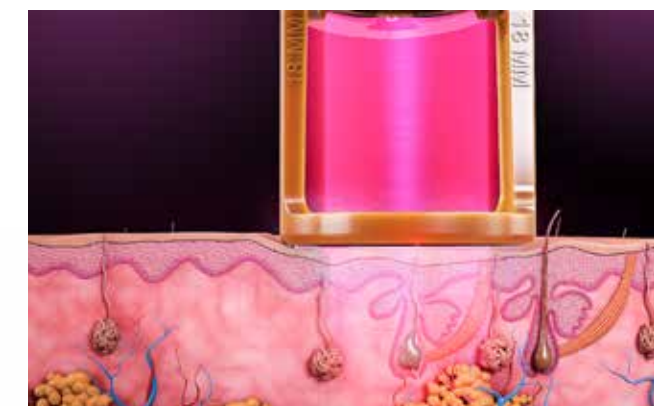
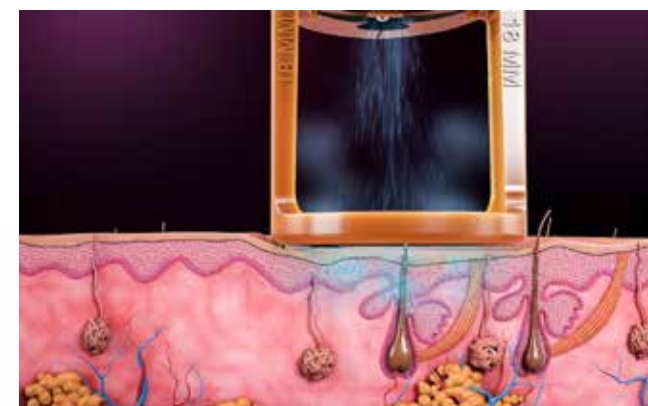
Spot sizes ranging from 1.5 mm up to 26 mm provide precision, flexibility and speed to address different body regions and indications.



Advanced treatment control is provided with easy-to-use interface designed for intuitive and agile workflow.

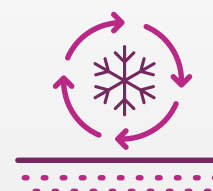
Exceptional patient protection

Fast, efficient and dependable epidermal protection, providing improved treatment outcomes and comfort for patients.



Incorporating the Dynamic Cooling Device (DCD™) cooling system

- DCD cooling increases patient comfort and epidermal protection by delivering targeted bursts of cryogen to the top layers of the skin milliseconds before, and optionally after, the laser pulses.
- Increased power requires exceptional epidermal protection. The Cooling Protection Factor of DCD cooling is over 50% greater than air or contact cooling, allowing for higher fluences to be used, leading to positive treatment outcomes.³
- DCD cooling delivers consistent cryogen protection before and after each laser pulse, independent of treatment technique⁴...delegate with confidence!
- DCD cooling protects the skin no matter how fast the laser is fired, providing adequate protection twice as fast as chilled air or contact cooling.³



Consistent & Delegable

Technique independent for reproducible epidermal protection



Speed

Protects the skin no matter how fast the laser is fired



Comfort

Increases patient comfort and epidermal protection



Cost Effective

Use just the right amount of cryogen, every time

Treatment Success + Patient Comfort
= Patient Satisfaction



Results.

Laser Hair Removal



Before



After 3 treatments

Courtesy of Candela Institute of Excellence

All photos are unretouched. Individual results may vary

Results.

Laser Hair Removal



Before



11 months after 5 treatments

Courtesy of Dr. Konika Patel Schallen, MD

All photos are unretouched. Individual results may vary



Before



After 2 treatments

Courtesy of Candela Institute of Excellence

All photos are unretouched. Individual results may vary



Before



4 weeks after 3 treatments

Courtesy of Candela

All photos are unretouched. Individual results may vary

Results.

Hair Removal



Before



8 weeks after 4 treatments

Courtesy of Dr. Konika Patel Schallen, MD

All photos are unretouched. Individual results may vary

Results.

Pigmented Lesion



Before



After 4 treatments

Courtesy of Candela Institute of Excellence

All photos are unretouched. Individual results may vary

Pigmented Lesion



Before



6 weeks after 2 treatments

Courtesy of Dr. Konika Patel Schallen, MD

All photos are unretouched. Individual results may vary



Before



After 5 treatments

Courtesy of Candela Institute for Excellence

All photos are unretouched. Individual results may vary



Results.

Pigmented Lesion



Before



After 3 treatments

Courtesy of Candela Institute of Excellence

All photos are unretouched. Individual results may vary

Onychomycosis



Before



After 4 treatments

Courtesy of Candela Institute of Excellence

All photos are unretouched. Individual results may vary

Results.

Vascular Lesion



Before



1 week after 4 treatments

Courtesy of Candela Institute of Excellence

All photos are unretouched. Individual results may vary

Wrinkles



Before



After 3 treatments

Courtesy of Candela Institute of Excellence

All photos are unretouched. Individual results may vary



Summary of peer-reviewed articles



Analysis of the Curative Effect of Alexandrite Laser in the Treatment of Venous Lake of Lips.

Wang Z, Ke C, Yang M, et al. Lasers Surg Med. 2020 Nov 25.

Study details

- 41 patients (32 females, mean age 37.7 years (8-54 years)) treated (2014-2019) for a single venous lake on the lip of 0.6-1.5 cm in diameter were reviewed.
- 1 to 3 treatments with an alexandrite laser (Gentle) with 755 nm wavelength, pulse duration of 3 milliseconds, spot size of 8 mm and energy 50-90 J/cm². DCD cooling with 50-60 msec pre-spray/20 msec delay/20 msec post-spray.
- Clinical efficacy assessment: (1) basic recovery: the color of skin lesion subsided to ≥95%, the tumor disappeared, and the skin at the local area of lesion recovered or close to normal skin color; (2) effective: the color and volume of lesion subsided to 75-95%; (3) improvement: the color and volume of the lesion subsided to 30-75%; (4) ineffective: no significant change or deterioration in the color and volume of lesion.

Results at 1-month after treatment

- **80.5%** (33) patients achieved **basic recovery** and **19.5%** (8) treatment assessments were classified as **effective**.
- **100% Total effective rate** = (basic recovery + effective) /total cases x 100%.
- **Most (71%, 29/41) subjects cured after 1 treatment**, 3 subjects after 2 treatments and 1 subject after 3 treatments.
- Mild scar in 1 patient. No other adverse reactions.

Summary of peer-reviewed articles



Gentle Nd:YAG Laser Therapy in the Treatment of Cutaneous Venous Malformations.

Spradley TP, Johnson AB, Wright HD, et al. Facial Plast Surg Aesthet Med. 2020 Aug 26.

Study details

- Retrospective chart review of 45 patients (18 males, 27 females) with mean age 9 years (range 1–26 years) at initial treatment with GentleYAG therapy for cutaneous venous malformations (VMs) on the lip, leg, hand, neck, and chest.
- Median of 2 treatments (range 1-5) per patient with treatment settings: 80–240 J [/cm²], pulse size range of 3 to 8 [mm spot size], and 3 to 222 pulses. Intervals from 3 to 6 months between each laser treatment.
- 10 blinded reviewers evaluated photographs for growth, stability, improvement, or resolution of VMs.

Results after the treatment series

- Improvement in the appearance of the VM in **72% of subjects**.
- Complete resolution in 8.2% and significant improvement in 34.5%.
- 75% (3/4) patients with symptomatic pain associated with VMs at baseline reported resolution of symptoms after laser treatment.
- Infection, bleeding, blister, and color change at the treatment site were each reported in <2.5% of treated subjects.

Summary of peer-reviewed articles



Observation on the effects of 595-nm pulsed dye laser and 755-nm long-pulsed alexandrite laser on sequential therapy of infantile hemangioma.

Jin WW, Tong Y, Wu JM, et al. J Cosmet Laser Ther 2020 Apr 2;22(3):159-164.

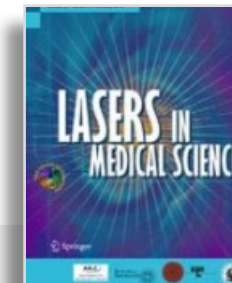
Study details

- 194 infantile hemangioma (IH) patients (mean age was 181.39 days), with IH thickness >2 mm and <8 mm, were randomly divided into two groups:
 - control group (n=97) treated using Vbeam® 595-nm pulsed dye laser.
 - experimental group (n=97) treated by sequential therapy with Gentle 755-nm long-pulsed alexandrite laser and Vbeam laser.
- Gentle treatment parameters: 755 nm wavelength, pulse duration of 3 ms, spot size of 8 mm, energy 35-45 J/cm² and DCD cooling with 20 ms duration / 20 ms delay. Vbeam: 595 nm wavelength, pulse 0.45 to 40 ms, spot sizes of 3-10 mm, frequency 1.5 Hz, energy 7-14 J/cm² and DCD cooling with 20-40 ms duration / 10-40 ms delay.
- 3 non-study professionals graded efficacy from 1, poor effects to 4, excellent effects: the focus shrank by 76–100%.

Results at 6-months after treatment

- **76.3%** (74/97) of patients graded with score >2 (51-100% effect) for **combined treatment vs. 36.1%** (35/97) in **control group**.
- Mean 8.2 combined treatments vs. 4.5 Vbeam only treatments.
- Transient effects of depigmentation and ulcers in both groups and bubbles [bullae] with combined treatment only. No scarring.

Summary of peer-reviewed articles



Long-pulsed 1064-nm Nd:YAG laser ameliorates LL-37-induced rosacea-like skin lesions through promoting collagen remodeling in BALB/c mice.

Kim M, Kim J, Jeong SW, Jo H, Park HJ. Lasers Med Sci. 2018 Feb;33:393-397.

Study details

- 40 7-week-old female BALB/c mice were injected intradermally twice a day for 2 days with LL-37 to induce rosacea-like clinical features.
- 15 of the 40 mice were treated with LPND (GentleMax): 35 J/cm², 50-ms pulse duration, and 10-mm spot size.
- After 48 hours, the excised skin sample was stained with H&E and with Masson's trichrome stain for collagen

Results

- LPND treatment **significantly reduced erythema** and **telangiectasia**.
- LPND treatment **increased dermal collagen** production.
- Levels of **Type I collagen, TGF-β, and MMP-1 mRNA** were **significantly higher** in LPND-treated mice than in untreated mice.

Summary of peer-reviewed articles



A randomized side-by-side study comparing alexandrite laser at different pulse durations for port wine stains.

Carlsen BC, Wenande E, Erlendsson AM, et al. Lasers Surg Med. 2017 Jan;49:97-103.

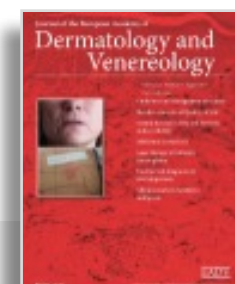
Study details

- 16 adults (6 men, 10 women) aged 27–78 (mean 50.3) with Fitzpatrick Skin Types I–III.
- 14 PWS previously PDL-treated with deep red (n=4), purple macular (n=5) and purple hypertrophic (n=7) PWS.
- PWS subdivided to 3 test areas randomized to 755 nm Alex laser (GentleMax): 8 mm spot size (DCD 60/40); pulse durations of 3 ms (fluence 40–65 J/cm²), 5 ms (fluence 45–70 J/cm²) or 10 ms (fluence 50–80 J/cm²) - 4th test spot untreated control.
- PWS clearance evaluated on a scale of 0=no response to 4=excellent response (75–100% clearance).

Results at 6-8 week follow-up

- **Alex laser at 3, 5, and 10 ms pulse durations** demonstrated **significant clearance** compared to untreated controls (P<0.001).
- **3 ms pulse duration had higher clearance rates** than 5 ms or 10 ms and a **better safety profile**.

Summary of peer-reviewed articles



Nd:YAG and pulsed dye laser therapy in infantile haemangiomas: a retrospective analysis of 271 treated haemangiomas in 149 children.

Hartmann F, Lockmann A, Grönemeyer LL, et al. J Eur Acad Dermatol Venereol. 2017 Aug;31:1372-1379.

Study details

- 271 IH in 149 infants (107 females & 42 males; median age 24 weeks, range 1-533 weeks) were treated with Nd:YAG and PDL (n:187, 69%) or PDL alone (n:84, 31%).
 - Treatment parameters:
 - 1064-nm Nd:YAG laser (GentleYAG): 6-mm spot diameter, fluence 90 - 170 J/cm², 50-ms pulse duration, epidermal cooling with 30-ms duration/ 60-ms delay;
 - 595-nm PDL (Vbeam®): 7-mm spot diameter, fluence 9 - 14 J/cm², 3-ms pulse duration and DCD cooling with 30-ms duration/10-ms delay.
- 3 physicians independently evaluated IH remission based on clinical photographs at baseline and 4–6 weeks after the last treatment.
- Remissions were categorized as 0–25% (I), 26–50% (II), 51–75% (III) and 76–100% (IV).

Results at 4-6 weeks after final treatment

- **Moderate or strong (III/IV) improvement** was observed in **92.4%** of all IH treated.
- **No serious adverse effects** were observed.

Summary of peer-reviewed articles



Hypertrichotic Becker's nevi treated with combination 1,550 nm non-ablative fractional photothermolysis and laser hair removal.

Balaraman B, Friedman PM. Lasers Surg Med. 2016 Apr;48:350-3.

Case study 1

- 43-year-old male patient with Fitzpatrick Skin Type III treated for 8x11-cm² brown patch with terminal hairs (Becker's nevi) on the arm and elbow.
- 2 **laser hair removal treatments** (8-week interval) with 1,064-nm LPND (GentleMax): 18mm spot size, 3–5 ms, fluence 10 J/cm², DCD (30/20).
- 8 NAFR treatments (4 to 8-week intervals) using the 1,550-nm erbium-doped laser (Fraxel DUAL): 15 mm, 9–40 mJ, 14–20% coverage, cold-air cooling 5, 8 passes.
- **>95% clearance** by independent clinical and photographic assessment.

Case study 2

- 28-year-old female patient with FST IV treated for large brown patch with terminal hairs (Becker's nevi) on the back.
- 3 **laser hair removal treatments** (4 to 8-week intervals) with 1,064-nm LPND (GentleMax): 18 mm spot size, 20 ms, fluence 14 J/cm², DCD (40/40).
- 5 NAFR treatments (4 to 8-week intervals) using the 1,550-nm erbium-doped laser (Fraxel DUAL): 15 mm, 30–45 mJ, 20% coverage, total 1.74–2.10 kJ, cold-air cooling 5, 8 passes
- **>75% clearance** by independent clinical and photographic assessment at 3-month follow-up.

Summary of peer-reviewed articles



Efficacy of the long-pulsed 1064-nm neodymium:yttrium aluminum-garnet laser (LPND) (rejuvenation mode) in the treatment of papulopustular rosacea (PPR): A pilot study of clinical outcomes and patient satisfaction in 30 cases.

Lee JH, Kim M, Bae JM, et al. J Am Acad Dermatol. 2015 Aug.

Study details

- 30 Korean subjects (24 females, 6 males) with Fitzpatrick Skin Types IV-V and papulopustular rosacea (PPR).
 - Group A: 22 patients with mild-to-moderate PPR treated with laser alone.
 - Group B: 8 patients with severe PPR treated with laser + doxycycline (100 mg twice daily).
- 3 full-face Nd:YAG GentleMax treatments (40 to 50 J/cm², 50 msec pulse duration and a 10-mm spot size, DCD cooling) at 4-week intervals.
- Blinded evaluation (3 dermatologists) at 4 weeks after the last treatment, using a 4-point severity grading system for rosacea.

Results at 1 month after treatment

- Excellent to good overall improvement was seen in 77.3% (17 of 22) of patients in Group A and 87.5% (7 of 8) of patients in Group B.
- Significant decrease in papule/pustule activity and improvement in erythema score.

Summary of peer-reviewed articles



Therapeutic efficacy of long-pulsed 755-nm alexandritelaser for seborrheic keratoses.

Kim YK, Kim DY, Lee SJ, et al. J Eur Acad Dermatol Venereol. 2014 Aug;28(8):1007-11.

Study details

- 13 Korean patients (11 males, 2 females, mean age 59.3 years, range 33–77; Fitzpatrick Skin Types III and IV) with 216 seborrheic keratoses.
- 1 or 3 sessions of long-pulsed 755-nm alexandrite laser (GentleMax) with 35 J/cm², 6-mm spot size, a 3-msec pulse width and 1-2 passes, DCD cooling.
- Blinded evaluation (3 dermatologists) at 2 months after the last treatment, using a 1- 4 severity grading score.

Results at 1 month after treatment

- Mean objective **improvement score of 3.4±0.7 (Grade 3=Marked Improvement)**.
- Type of lesion impacted number of treatment sessions needed, in particular, papular lesions needed more treatment than macular lesions.
- Objective improvement score was not affected by the type of the seborrheic keratosis.
- Most of the lesions became crusted within a few days after the laser treatment and spontaneously peeled off within 7 days.

Summary of peer-reviewed articles



Treatment of Compound Melanocytic Nevus Using a Long-pulsed 755-nm Alexandrite Laser.

Young Koo Kim, Sung Bin Cho. Medical Lasers; 2013; 2(1): 29-32.

Study details

- 16-year-old Korean male with darkly pigmented mammillated compound melanocytic nevus.
- 4 sessions of long-pulsed 755-nm alexandrite laser (GentleMax) with 35 J/cm², 6-mm spot size, a 3-msec pulse width and 2 passes.
- Global Aesthetic Improvement Scale and physician assessments using a 4-point severity scale.

Results at 1 month after treatment

- **Marked clinical improvement after 2nd treatment.**
- **Compound nevus disappeared** at 1 month after 4 treatments.
- Crusting for 5-7 days after treatment.
- No side effects of post-therapy blister formation, secondary bacterial or viral infection, post-therapy prolonged erythema, dyschromia, or scarring.

Summary of peer-reviewed articles



Nd:YAG laser hair removal in Fitzpatrick Skin Types IV to VI.

Chan CS, Dover JS. J Drugs Dermatol. 2013 Mar;12(3):366-7.

Clinical practice details

- Use of a 1,064-nm, long-pulsed Nd:YAG laser (GentleYAG) for darkly pigmented patients (**Fitzpatrick Skin Types IV-VI**)
- Start with a pulse duration of 3 msec, a 12-mm spot size, and fluences of 24 to 32 J/cm², depending on skin type, and DCD cooling device.
- Fluence can be increased.
- Hair reduction is noticeable after 1st treatment.
- More significant after a series of treatments, depending on body area (3-6 for arms and legs). Typical response shown in Figure 1.

FIGURE 1. a) Before treatment. b) After 3 laser hair removal treatments of the beard with a neodymium-doped yttrium aluminum garnet device.



Summary of peer-reviewed articles



Alexandrite laser for the treatment of port wine stains refractory to pulsed dye laser.

Tierney EP, Hanke CW. Dermatol Surg. 2011 Sep;37(9):1268-78.

Study details

- 8 subjects (4 males, 4 females, mean age 36.4 years) with facial PWS refractory to PDL (mean of 25.9 treatment sessions with PDL over 8 years).
- 2-4 treatment sessions (mean 2.6), at 6- to 8-week intervals, with the GentleLase 755-nm ms pulsed Alexandrite laser (MSPAL); 40-60 J/cm², 8 to 12 mm spot size, a 3-msec pulse width, DCD cooling.
- 2 blinded dermatologists evaluated degree of improvement in skin color, skin texture, and overall clinical outcome, using a quartile scale.

Results 2 months after treatment

- Mean **severity scores decreased significantly** after treatment with **60.0% improvement in skin texture, 56.3% in skin color and 59.4% overall improvement.**
- Results were similar for hypertrophic and nodular PWS.
- Postoperative purpura and edema resolved within 1 week of treatment.
- **No blister formation, crusting, dyspigmentation, or scarring.**

Summary of peer-reviewed articles



Clinical experience in skin rejuvenation treatment in Asians using a long-pulse Nd:YAG laser.

Chiba C, Usui A, Hara H, Ishi Y. J Cosmet Laser Ther. 2009 Sep.;11(3):134-8.

Study details

- 19 female Japanese patients (Fitzpatrick Skin Types III or IV) with wrinkles, skin texture, and skin laxity.
- 2 to 7 long-pulse Nd:YAG laser (GentleYAG) treatments every 3-4 weeks.
- 8-mm spot size, pulse duration of 0.3 msec, fluence of 13 J/cm², repetition rate of 7Hz, and no cryogen spray cooling, using a constant, painting motion technique.
- 3 blinded dermatologists evaluated degree of improvement on a 5-point scale.
- Histological findings in 1 patient.

Results at 1 month after final treatment

- **53% of the patients** experienced either good or excellent (**>50%**) **improvement**.
- **Increase in density of collagen fibers** at the treated sites in the papillary dermis.
- **No adverse effects** such as purpura, hyperpigmentation, blistering or scarring.

Summary of peer-reviewed articles



Treatment endpoints for resistant port wine stains with a 755 nm laser.

Izikson L, Anderson RR. J Cosmet Laser Ther. 2009 Mar;11(1):52-5.

Clinical observation report

- 5 examples of PWS tissue response endpoint.
- Resistant PWS treated with a 755 nm laser at high fluences (40–100 J/cm²), 1.5-ms pulse duration, with dynamic cooling device (40 msec spray/40 msec delay).
- With increasing fluence, endpoints for sub-therapeutic to therapeutic to supra-therapeutic treatment are described.

Treatment endpoint observations

- Mild-to-moderate PWS lightening was associated with the immediate endpoint of a transient gray color that gradually evolved into persistent deep purpura within several minutes.

Sub-optimal treatment endpoints

- Immediate deep erythema or transient purpura that evolves into tissue erythema and edema.
- Immediate slight gray color that immediately fades, produces deep erythema or faint purpura, but fails to produce deep purpura.
- Persistent gunmetal gray color that represents overtreatment: a dermal burn that could lead to scarring.

Summary of peer-reviewed articles



Optimal pulse durations for the treatment of leg telangiectasias with an alexandrite laser.

Ross EV, Meehan KJ, Gilbert S, Domankevitz Y. Lasers Surg Med. 2009 Feb;41(2):104-9.

Study details

- 15 patients (Fitzpatrick Skin Types I-III) with telangiectasia ranging from 0.2 to 1.0 mm in diameter (mean size of 0.4 mm).
- Radiant exposures: escalating doses of laser energy were applied in 5 J/cm² increments up to 97 J/cm² with the 6mm spot size and up to 221 J/cm² with the 3 mm spot size and DCD cooling (50 msec spray/20 msec delay).
- Closure was defined by the disappearance of the vessel, verified by a dermatoscope.
- Treatment response evaluated by 10 independent, blinded physicians.

Results at 12 weeks after full treatment

- Optimal pulse duration, spot size, and radiant exposure results at the 3-week test site visit were determined to be 60 msec, 6 mm, and 89 J/cm².
- **65% clearance of the vessels after 1 treatment** with optimal parameters.
- Overall subjective improvement was 3.4 (some to significant improvement).
- Hyperpigmentation incidence (~30%) was not related to pulse duration. **No scarring.**

Summary of peer-reviewed articles



Comparison of long-pulsed alexandrite and Nd:YAG lasers, individually and in combination, for leg hair reduction: an assessor-blinded, randomized trial with 18 months of follow-up.

Davoudi SM, Behnia F, Gorouhi F, et al. Arch Dermatol. 2008 Oct;144(10):1323-7.

Study details

- 20 individuals aged 16 to 50 years with Skin Phototypes III and IV.
- Legs received a total of 4 treatments at 8-week intervals with 1 of the 4 following treatment procedures:
 - (1) GentleYAG Long-pulsed 1064-nm Nd:YAG laser (12-mm spot size);
 - (2) GentleLase Long-pulsed 755-nm alexandrite laser (12-mm spot size);
 - (3) GentleLase Long-pulsed 755-nm alexandrite laser (18-mm spot size);
 - (4) Combination of GentleYAG and GentleLase (treatments 1 & 2).
- Hair counts with digital photography by 2 blinded assessors at 8 and 18 months after the last treatment session.

Results at 18 months after final treatment

- Significant hair reduction for all groups (analysis of variance, P<0.05): 75.9% hair reduction for the 12-mm spot size. alexandrite laser; **84.3% for the 18-mm spot size alexandrite laser**; 73.6% for the Nd:YAG laser; 77.8% for the combination therapy.
- Combination therapy did not have any additional benefit and caused more adverse effects.

Summary of peer-reviewed articles



Use of a long-pulse alexandrite laser in the treatment of superficial pigmented lesions.

Trafeli JP, Kwan JM, Meehan KJ, et al. Dermatol Surg. 2007 Dec;33(12):1477-82.

Study details

- 18 patients (mean age 53.8 years, range, 36–78 years) with Fitzpatrick Skin Types I to III treated for lentigines on their faces, chest, shoulders, arms, or hands.
- Test-site session: 10-mm spot size with different pulse durations (3, 20, 40, or 60 ms) and fluences, according to skin type and pigmentation of lesion.
- Single treatment session at 3 weeks after a test-site session, using optimal parameters from test spots.
- Blinded evaluation of photographs at 6-week follow-up.

Results at 6-week follow-ups after full treatment session

- All patients **(100%) showed some improvement** in their lentigines, by blinded assessment.
- Darker lentigines achieved the greatest lesion clearance (76% to 99% lesion clearance overall).
- **87% of subjects reported improvement** (some to complete).
- Erythema and edema resolved spontaneously after 2 days.
- **No instances of postinflammatory hyperpigmentation** or side effects at follow-up.

Summary of peer-reviewed articles



Optimal pulse durations for the treatment of leg telangiectasias with a neodymium YAG laser.

Parlette EC, Groff WF, Kinshella MJ, et al. Lasers Surg Med. 2006 Feb;38(2):98-105.

Study details

- 21 females (Fitzpatrick Skin Types I–IV) with leg vessels ranging from 0.1 to 1.6 mm in diameter (mean size of 0.8 mm).
- Radiant exposures: 80-200 J/cm² with the 6mm spot size, 200-300 J/cm² with the 3 mm spot size, 280 to 580 J/cm² with the 1.5mm spot size.
- 3 blinded physicians evaluated treatment response at 13 weeks after full treatment.
- Histology from 1 biopsied patient.

Results

- Immediate results: higher fluences achieved **complete stenosis in 80% of the vessels**.
- At 13 weeks after treatment, blinded observers rated **complete clearance in 71% of treated vessels**.
- **High patient satisfaction** with mean score of 4.2 (5-point scale).
- Hyperpigmentation was seen in 48% of patients following test sites (tended to fade by week 16 of the study).
- Histology showed contraction of the vessel lumen with hyalinization of the endothelium and perivascular collagen.

Summary of peer-reviewed articles



Laser treatment of leg veins: Physical mechanisms and theoretical considerations.

Ross EV, Domankevitz Y. Lasers Surg Med. 2005 Feb;36(2):105-16.

Review paper

- A Monte Carlo model was used to examine volumetric heat production, fluence rate, and temperature profiles in blood vessels at 1064 and 532 nm wavelengths, with various beam diameters, vessel diameters, and pulse durations.
- The **1064 nm wavelength penetrates deeper** in the skin than the 532 nm wavelength (Fig.1).
- Authors suggest that **long pulses** and **long wavelengths are the best approach** for side-effect free clearance of leg veins 0.2–2 mm in diameter.
- Of the two primary clearance mechanisms, vessel contraction is favored over thrombosis.

Summary of peer-reviewed articles



Use of the alexandrite laser for treatment of seborrheic keratoses.

Mehrabi D, Brodell RT. Dermatol Surg. 2002 May;28(5):437-9.

Case report

- Male patient treated for hundreds of seborrheic keratosis and areas of mild hypopigmentation due to previous liquid nitrogen therapy.
- 4 test spots to lesions, using 755 nm wavelength, 100 J/cm² fluence and 8 mm spot size.
- After 12-day follow-up, same parameters were used to treat hundreds of sites in 3 sessions.
- After 1 treatment, most lesions responded by turning black, becoming brittle and detaching within 2 weeks.
- Some noticeable scarring and hypopigmentation occurred.
- Patient was extremely satisfied with treatment.



Figure 1. Back A) before laser treatment and B) 2-month follow-up after final laser treatment.

Summary of peer-reviewed articles



Laser hair removal with alexandrite versus diode laser using four treatment sessions: 1-year results.

Eremia S, Li C, Newman N. Dermatol Surg. 2001 Nov;27(11):925-9.

Study details

- 15 females (18–35 years old) with Fitzpatrick Skin Types I–V.
- Each axilla was split into 2 halves and treated on superior/inferior area:
 - 755 nm alexandrite (3 msec pulses, 12 mm round spot size, cryogen cooling device) at maximum tolerated fluence up to 40 J/cm².
 - 800nm diode laser (9 mm square spot size and built-in sapphire window contact cooling device) at maximum tolerated fluence up to 40 J/cm².
- 4 treatment sessions at 4 to 6-week intervals.
- Hair counts at 3, 6, and 12 months after the final treatment.

Results at 12 months after last treatment session

- **Mean hair reduction of 85% for alexandrite** 755 nm, 12 mm vs. 84% for diode 800 nm, 9 mm.
- **Superior cooling device with alexandrite system** allowed all patients, regardless of skin type, to tolerate the same **maximum fluence** with both lasers.
- There were **no complications**.

Summary of peer-reviewed articles



Short pulse intense pulsed light versus pulsed dye laser for the treatment of facial redness.

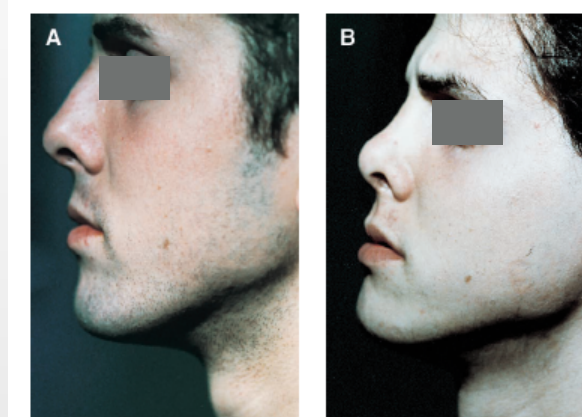
Eremia S, Li CY, Umar SH, Newman N. Dermatol Surg. 2001 Nov.

Study details

- Retrospective chart review of 89 patients with Fitzpatrick Skin Types I–V, who underwent a total of 492 alexandrite laser treatments (mean of 5.6 treatments) at 4–6 week intervals.
- Treatment sites included: axillae, bikini, extremities, face, and trunk.
- Spot sizes of 10–15 mm, fluences ranging from 20–50 J/cm², 3 msec pulse-width, and a dynamic cryogen spray skin cooling system.

Results at last treatment session

- Mean hair reduction of **74% for all areas**.
- Significant correlation between efficacy and fluence (higher fluence = higher efficacy).
- **Transient side effects only**. No scarring or lasting adverse events.



Fitzpatrick Skin Type III: A. Pre-treatment; B. At 12 months, after four treatments at 40J/cm² (after rhinoplasty)

Summary of peer-reviewed articles



Topical anesthesia for laser hair removal: comparison of spot sizes and 755 nm versus 800 nm wavelengths.

Eremia S, Newman N. Dermatol Surg. 2000 July;26(7):667-9v.

Study details

- 12 females (18–34 years old) with Fitzpatrick Skin Types I–IV.
- Each axilla was split into 2 halves and treated on superior/inferior area:
 - Right axilla: 755 nm alexandrite (3 msec pulses, 8 mm round spot size, cryogen cooling device) at maximum tolerated fluence up to 40 J/cm².
 - Other half of right axilla: 755 nm alexandrite (3 msec pulses, 12 mm round spot size, cryogen cooling device)
 - Half of left axilla: 800 nm diode laser (9 mm square spot size and built-in sapphire window contact cooling device) at maximum tolerated fluence up to 40 J/cm².
 - Other half of left axilla: 755 nm alexandrite (3 msec pulses, 12 mm round spot size, cryogen cooling device).
- 3-4 treatment sessions at 4 to 6-week intervals.

Results

- Pain level significantly greater with diode laser** with the same fluence for both lasers (with or without topical anesthetic) and for both spot sizes.
 - Cryogen spray (DCD) protects the epidermis by:
 - Physically impeding the laser beam by the spray.
 - Cooling the skin surface.
- Cryogen spray cooling of the skin allows higher fluence to be used on all Fitzpatrick Skin Types.

Product Specifications

SYSTEM SPECIFICATIONS		
Laser Type	Alexandrite	Nd:YAG
Wavelength	755 nm	1064 nm
Repetition	Up to 10 Hz	Up to 10 Hz
Max Delivered Energy	53 Joules (J)	80 Joules (J)
Pulse Duration	0.250 -100 ms	
Spot Sizes	6 mm, 8 mm, 10 mm, 12 mm, 15 mm, 18 mm	
Optional Small and Large Spot Specialty Delivery Systems	Small - 1.5, 3, 5 and 3 x 10 mm Large - 20, 22 and 24 mm	
Beam Delivery	Lens-coupled optical fiber with handpiece	
Pulse Control	Finger switch, foot switch	
Dimensions	107 cm H x 46 cm W x 69 cm D (42" x 18" x 27")	
Weight	118 kg (260 lbs)	
Electrical	200-240 VAC, 50/60 Hz, 30 A, 4600 VA single phase	

Patented Dynamic Cooling Device

Integrated controls, cryogen container and handpiece with distance gauge

Cryogen	HFC 134a
DCD Spray Duration	User adjustable range: 10-100 ms
DCD Delay Duration	User adjustable range: 20-100 ms
DCD Post-Spray Duration	User adjustable range: 10-50 ms

ALEXANDRITE FLUENCE	
Spot Size (mm)	Fluence (0.25 ms to 100 ms)
3	40 to 400 J/cm ²
3 x 10	10 to 200 J/cm ²
5	9 to 40 J/cm ²
6	6 to 150 J/cm ²
8	6 to 100 J/cm ²
10	6 to 60 J/cm ²
12	10 to 40 J/cm ²
15	6 to 30 J/cm ²
18	6 to 20 J/cm ²
20	5 to 16 J/cm ²
22	4 to 13 J/cm ²
24	3 to 11 J/cm ²

ND:YAG FLUENCE	
Spot Size (mm)	Fluence (0.25 ms to 100 ms)
1.5	300 to 520 J/cm ²
3	130 to 400 J/cm ²
3 x 10	80 to 300 J/cm ²
5	9 to 55 J/cm ²
6	6 to 200 J/cm ²
8	6 to 150 J/cm ²
10	6 to 100 J/cm ²
12	10 to 70 J/cm ²
15	6 to 44 J/cm ²
18	6 to 30 J/cm ²
20	5 to 24 J/cm ²
22	4 to 20 J/cm ²
24	3 to 16 J/cm ²





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