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CLINICAL REFERENCE GUIDE







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## Elite<sup>+</sup>™ Clinical Reference Guide

(Includes the Apogee<sup>+</sup>™ laser system)

921-7018-000, Rev. 4

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## About the Clinical Reference Guide

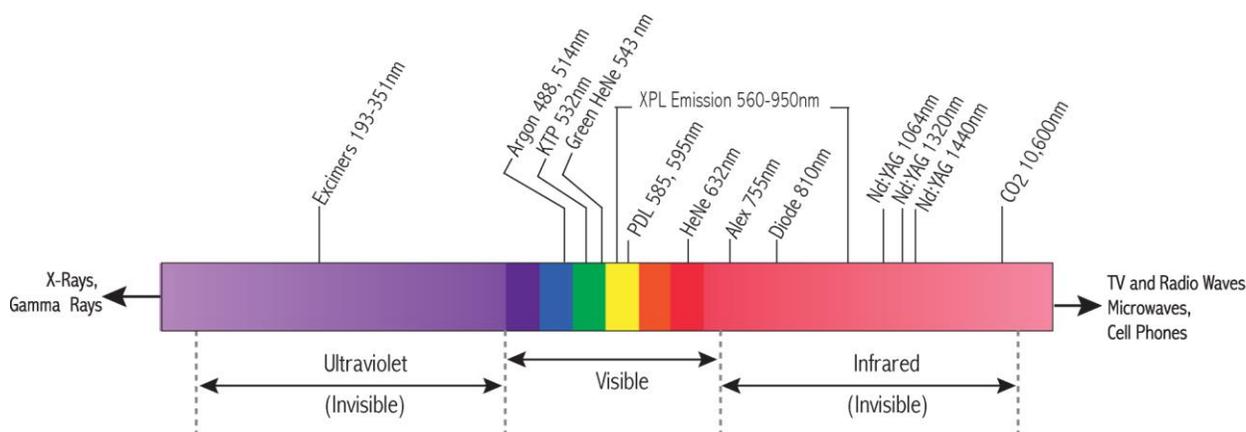
The purpose of this guide is to provide a summary of treatments and techniques when using the Elite<sup>+</sup> and the Apogee<sup>+</sup> laser systems. The clinical suggestions contained within this guide and shared by clinicians are based on current clinical use. However, they do not substitute for the clinical judgment of the physician and the individual patient’s needs.

Please refer to the Operator Manual, 850-7018-000, for information on the operation of the laser systems. Operators of the lasers must read and understand the operator manual before initial use.

The information in this guide is presented primarily using the Elite<sup>+</sup> laser, since that system houses both wavelengths. If you are using the Apogee<sup>+</sup> system, refer to the 755-nm wavelength or Alex laser information only.

## About the Elite<sup>+</sup> Laser System

The Elite<sup>+</sup> laser is a multi-application system that delivers energy in the near infrared (755 nm) and infrared (1064 nm) region of the electromagnetic spectrum. See Figure 1.



**Figure 1—Electromagnetic Spectrum**

## **Thermokinetic Selectivity Process**

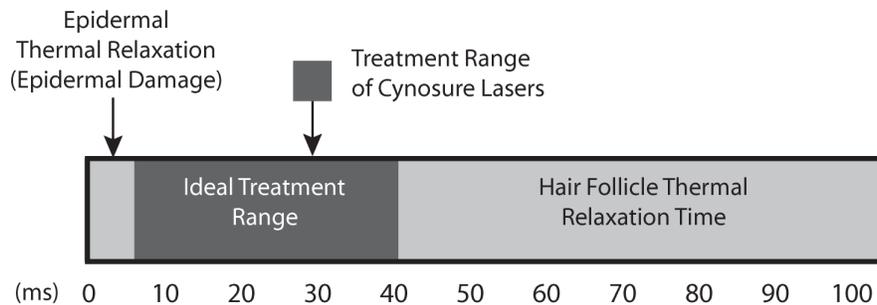
The Alexandrite wavelength (755 nm) and the Nd:YAG wavelength (1064 nm) target hair follicles, unwanted veins, pigmented lesions and treat sun-damaged skin. For example, in the case of hair removal, our long pulse infrared laser takes full advantage of the principle of Thermokinetic Selectivity, which accounts for the heat diffused by a target after laser energy has been absorbed. It is related to the target's volume: absorbed energy (heat) dissipates through thermal transfer more slowly from a large target than from a smaller target of the same chromophore.

## **Selective Photothermolysis**

Thermokinetic Selectivity is an extension of Selective Photothermolysis, in which wavelength, energy, pulse width and thermal relaxation time all play a part in the selective destruction of a target and the preservation of the surrounding tissue. The energy that is required to damage the large target would spare a smaller structure, if the energy were applied for a period longer than required for the small structure to dissipate its absorbed heat. Because of the unfavorable "surface area-to-volume" ratio, a target structure of large volume is less able to conduct absorbed energy (heat) through its relatively small surface and transmit it outward to the surroundings than a small volume structure with the same chromophore, such as the epidermis.

## Thermal Relaxation Time

When laser light is applied to a large target, such as a hair follicle, the pulse width of the laser must be shorter than the thermal relaxation time of the larger target, and yet much longer than the thermal relaxation time of the smaller target, such as the epidermis. See Figure 2. Thermokinetic Selectivity allows the epidermis to remain cool while the larger target, such as a hair follicle, heats up selectively. The thermal relaxation time of hair is 40-100 milliseconds (ms), and the thermal relaxation time of the epidermis is 3–10 ms.



**Figure 2—Ideal Range of Hair Removal**

The Elite<sup>+</sup> laser system delivers the correct combination of wavelengths (755 and 1064 nm), high fluences (up to 300 J/cm<sup>2</sup>) and long pulses (up to 300 ms) for its clinical applications.

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The sections in this guide include information for various treatments using the Elite<sup>+</sup> laser system. Treatment parameters routinely used in clinical practice are based on information provided by physicians using the Elite<sup>+</sup> laser, published articles, and results of clinical studies. Each patient is unique and should be evaluated prior to treatment for skin type. When in doubt about what parameters to use, it is recommended that a test spot be done. In this way, correct parameters can be determined. Use lower energy settings for darker skin types. The information should be used for guidelines only and should not take the place of your professional knowledge and training.

## Classification of Skin Types

This section of the guide discusses the clinical application of the Elite<sup>+</sup> laser in general terms. The section covers contraindications, possible adverse effects and patient selection.

Before treating with the Elite<sup>+</sup> laser, consider skin type and pigmentation of the patient. Pigment in the skin may compete with the intended target for absorption of laser energy. The Fitzpatrick Scale is a generally accepted means of determining skin type. Tanned skin also competes with the intended target and must be a consideration before treating.

The following table provides information on identifying skin types based on hair, skin color, eye color, and sun reaction.

**Table 1—Skin Types**

Type	Hair Color	Skin Color	Eye Color	Sun Reaction
I	Red	White	Blue-green	Always burns, never tans
II	Blonde	White	Blue	Usually burns, tans with difficulty
III	Brown	White to Light Brown	Brown	Sometimes burns, average tanning
IV	Brown-black	Moderate Brown	Brown-black	Rarely burns, tans with ease
V	Black	Dark brown	Dark	Very rarely burns, tans very easily
VI	Black	Black	Dark	Never burns, dark eyes

The Fitzpatrick Skin Type Classification Scale Posted: October 24, 2007, from the November 2007 issue of Skin Inc. magazine.

For your convenience contraindications, and adverse effects listed in the *Elite<sup>+</sup> Operator Manual*, 850-7018-000 have been reprinted below. Refer to the *Elite<sup>+</sup> Operator Manual* for safety precautions.

## Contraindications

Therapy using the Elite<sup>+</sup> and Apogee<sup>+</sup> lasers is contraindicated for those patients who:

- Are hypersensitive to light in the near infrared wavelength region
- Have sun-damaged skin (treatment contraindicated with Alex laser only)
- Have recent unprotected sun exposure (for Alex laser within four weeks of treatment; for Nd:YAG laser within one week of treatment), including the use of tanning beds or tanning products, such as creams, lotions and sprays
- Take medication which is known to increase sensitivity to sunlight
- Have seizure disorders triggered by light
- Take anticoagulants
- Take or have taken oral isotretinoin, such as Accutane<sup>®</sup>, within the last six months
- Take medication that alters the wound-healing response
- Have a history of healing problems or history of keloid formation
- Have an active localized or systemic infection, or an open wound in area being treated
- Have a significant systemic illness or an illness localized in area being treated
- Have a history of skin cancer or suspicious lesions
- Have lupus
- Are receiving or have received gold therapy
- Are pregnant or have been pregnant recently

**NOTE:** The clinical data on safety or efficacy on the pediatric population is not established.

## Adverse Effects

Adverse effects can include blistering, scabbing, crusting, pustules, burns, hypopigmentation, hyperpigmentation, erythema, edema, and scarring.

**WARNING: Subcutaneous injection of lidocaine or other local anesthetic prior to laser treatment with the laser may increase the incidence of adverse effects, such as burns, erythema and blistering.**

**WARNING: To reduce the incidence of adverse effects, such as burns, erythema and blistering, do not treat sun-exposed areas of skin with the 755-nm wavelength (Alexandrite laser of the Elite<sup>+</sup>/Apogee<sup>+</sup> systems).**

**IMPORTANT: Treatment effectiveness and the possibility of adverse effects correlate directly with fluence settings: higher fluence levels increase treatment effectiveness, but also increase the possibility of adverse effects. See Minimizing Adverse Effects on page 15 for ways to reduce possible adverse effects.**

### Adverse Effects–All Indications

The following adverse effects can occur when treating with the Elite<sup>+</sup> laser for all indications: hair removal, facial skin treatment, pigmented lesions, or veins.

- Scarring, though rare, can occur following any laser procedure.
- Blistering during treatment may be an indication of sun exposure or an excessive fluence setting for the skin type. Blistering can occur during the first three days following the laser procedure. Blistered areas should be kept moist with an ointment until healed.
- Other acute changes may include scaling or scabbing. These changes are often associated with higher energies and their incidence decrease when treatment energies are reduced.
- Histamine/Hives: some patients develop raised papules similar to hives. This irritation usually subsides in a few hours.

### Hair Removal

Additionally when using the Elite<sup>+</sup> laser for hair removal, these adverse effects can occur:

- Pustules or pimples may develop in the first few days following treatment. The affected area should be kept clean and treated with care.
- Hyperpigmentation or hypopigmentation can occur following the laser treatment. Pigmentary changes have been reported to be transient although they may last for several months or longer.

### Facial Skin Treatment

Additionally when using the Elite<sup>+</sup> laser for facial skin treatment, this adverse effect can occur:

- Pustules or pimples may develop in the first few days following treatment. The affected area should be kept clean and treated with care.

## Veins

Additionally when using the Elite<sup>+</sup> laser for treatment of veins, these adverse effects can occur:

- Hyperpigmentation or hypopigmentation can occur following the laser treatment. Pigmentary changes have been reported to be transient although they may last for several months or longer.
- Patients will experience some temporary reddening of the skin around the treatment site.

## Patient Consultation

Patient selection criteria are individuals presenting with the following issues:

**Hair removal:** Elite<sup>+</sup> laser therapy is for those patients who wish to reduce or eliminate hair. The 755-nm wavelength is ideal for treating hair in skin types I–III. The 1064-nm wavelength is ideal for treating skin types IV–VI or tanned skin (no sun exposure for 1 week prior treatment). Refer to the treatment parameters routinely used in clinical practice table for information about settings.

**Facial skin treatment with skin types I–IV:** Elite<sup>+</sup> laser therapy using 1064nm wavelength is for those patients with environmental skin damage, a red or ruddy complexion, discrete telangiectasia, uneven pigmentation and skin texture.

**Vascular treatment:** Elite<sup>+</sup> laser therapy using 1064nm wavelength is for those patients who present with telangiectasia, as well as seek treatment of leg vessels up to 3 mm in diameter. Vascular treatments are for patients with skin types I–IV.

**Pigmented lesions:** Elite<sup>+</sup> laser therapy using the 755-nm wavelength is for patients with skin type I-III who present with superficial pigmented lesions, as well as patients who want facial treatment for pigmented lesions.

## Determine Suitability

As with all medical procedures determining suitability, physicians should consider the following factors for each individual case:

- Patient's age
- Patient's skin type
- Location to be treated
- Family history of the patient
- Current medications
- Reason patient is seeking treatment
- Patient's expectations
- Sun exposure

## Screening Evaluation

A thorough screening evaluation may include: medical history, physical examination, and invasive or non-invasive diagnostic examination. Once the screening evaluation is undertaken, a course of therapy is then implemented.

The following is a sample sequence of events that may be used to evaluate, classify, and treat telangiectatic veins:

### Facial Veins

- Physical examination
- If no abnormal findings, then proceed with laser treatment

### Leg Veins

- Physical examination
- If no abnormal findings, then proceed with laser treatment
- If abnormal findings, then duplex scanning, varicography
- Sclerotherapy of large diameter veins
- Sclerotherapy of communication or reticular veins that feed spider veins
- Sclerotherapy of spider telangiectasia greater than 1 mm in diameter
- Proceed with laser treatment

## Inform Patient about the Treatment

After determining suitability, the physician should inform the patient of the following:

- The expected outcome of the treatment versus other possible outcomes
- The probable number of treatments needed to achieve the desired outcome
- Possible side effects resulting from laser treatment

## **Patient Expectations**

### **Hair Removal Treatment**

The Elite<sup>+</sup> laser is used to reduce or eliminate unwanted hair. Patients must understand that results vary with each person.

In addition, the duration of hair growth cycle varies among body location being treated. The laser can eliminate hair only if it is currently in the anagen growth phase, see Table 2. Multiple treatments are necessary to remove hair. Hair removal requires several weeks treatment intervals due to hair growth cycles, see Table 3—Hair Removal Treatment Intervals. Any results may not be apparent for several months posttreatment.

### **Facial Skin Treatment**

Treatment provides the most benefit to those with mild to moderate, sun-damaged skin. To achieve optimal benefit, 4 to 6 treatments may be necessary at 3 to 4 week intervals. Non-ablative facial treatment with the Elite<sup>+</sup> laser has minimal care requirements posttreatment. Patient may return to normal activities after treatment.

### **Pigment Lesions Treatment**

Pigmented lesion treatment provides the most benefit to those with superficial, benign, pigmented lesions. To achieve optimal benefit, 1 to 2 treatments may be necessary about 3 weeks apart. Patient may return to normal activities after treatment.

### **Vein Treatment**

Treatment with the Elite<sup>+</sup> laser is used to fade, reduce, or eliminate veins. Patients must understand that results vary with each individual. Therapy using the Elite<sup>+</sup> laser is not a cure for vein disease. Multiple treatments at 6 to 8 week intervals are often necessary. The laser feels like a snap of a rubber band and can be uncomfortable to many patients. The application of ice for a few seconds or the use of a cooling device may help alleviate discomfort. A topical anesthetic may be used prior to treatment.

## General Treatment Information

The operator should be able to determine the appropriate energy level of the laser, number of treatment sessions, size of treatment area at each session, and when no further treatment is warranted. At the time of treatment, the laser operator should also take precautions to prevent fire. Refer to the *Elite+ Operator Manual* for safety precautions.

### Minimizing Adverse Effects

Adverse effects may be reduced by cooling the area to be treated prior to treatment and removing all makeup, lotions, or creams from the area to be treated.

### Determine Appropriate Spot Size

Depending on the patient's skin type, different energy levels are needed. Generating test spots prior to treating and starting treatment at the lowest energy level setting is recommended.

### Number and Length of Treatment Sessions

The number and length of treatment sessions depends on the size of the treatment area, the success rate of the treatment, and the patient's tolerance of the treatment.

### Determining End of Treatment

The physician should determine the end of treatment by the complete success of treatment, non-compliance on the part of the patient, or adverse effects of the treatment.

## General Pretreatment Procedures Information

### Patient History

A thorough history of previous treatment methods, current medications, allergies, and pigmentary problems should be discussed before treatment.

Patients with a history of hyperpigmentation and/or patients with skin type III or greater can be pretreated with topical bleaching agents 2–4 weeks prior to laser treatment and for 2 weeks following treatment to reduce the risk of pigmentary changes.

Depending on procedure, instruct the patient to shave the treatment areas within 24 hours before treatment. This is to remove the overlying hair from the treatment site. Thick, overlying hair will absorb the laser energy reducing the amount of energy absorbed by the hair follicle. Superficial thermal injury can occur as well due to overlying hair (hair removal treatment).

Patients with a history of hyperpigmentation can be prescribed a preparation containing topical bleaching cream 2–4 weeks prior to treatment.

## Sun Exposure

Patients should avoid sun exposure, including tanning beds, self-tanning lotions/creams/sprays before, during, and after the course of laser treatments, for a length of time as detailed below.

- Patients with the slightest tan should not be treated with the 755nm Alex laser.
- When using 755nm Alex laser, the patient should avoid sun exposure, tanning beds, sunless tanning lotions/creams/sprays (self-tanners) for **at least 4 (four) weeks** before treatment, during the course of treatment, and at least 1 (one) week after treatment.
- When using 1064nm Nd:YAG laser, the patient should avoid sun exposure, tanning beds, sunless tanning lotions/creams/sprays (self-tanners) for **1 (one) week** before treatment and 1 (one) week after treatment. **NOTE:** If self-tanning cream evident after wiping with an alcohol swab, wait 1 (one) more week before treating.

A broad-spectrum sun block (UVA/UVB) and SPF 30 or greater should be applied to the treatment area before any sun exposure.

## Test Spots

Treatment energies for each patient will vary according to patient skin type, location, density, and color of hair. Test spots using a variety of energies and pulse durations are recommended. These ensure that the energy delivered to the patient is within safe parameters. Start at the low range and then increase the fluence based on spot size and skin type.

## Testing Evaluation

Between 10 and 20 minutes after administering treatment spots, evaluate the tested area(s) to identify appropriate treatment fluence.

Verify that any hypopigmentation or hyperpigmentation has been transient to date. If the patient is concerned about pigmentary changes, further treatments may be delayed. Once the area returns to normal skin tone, treatments may be resumed.

If the treated area appears blanched, gray or white, the fluence is too high and should be decreased accordingly.

Further testing may be indicated depending on the results seen from the first area(s) tested.

Documenting test sites either with photos or anatomic forms is helpful during the evaluation phase. Use anatomic forms to clarify the location of the test sites and indicate the fluence used.

## Photographs

Cynosure recommends taking photographs to document all procedures done using the laser. This allows assessment of treatment efficacy and assists in development of a clinical plan for subsequent treatments.

## Skin Cleaning

Prior to actual treatment, remove all makeup, lotions, deodorant, and oil from the area to be treated. Clean area to be treated thoroughly using a facial cleanser or mild soap and water, and then with 70% isopropyl alcohol to remove the oils. Allow the skin to dry before treating.

## Posttreatment Guidelines for Patients

After each treatment session, physicians should advise their patients on the proper care of the treated area.

- Wash the treatment area gently with soap and water. Do not soak. Gently pat area to dry.
- Do not shave the treated area if blistering or crusting is evident.
- Avoid contact sports or any other activity that could cause bruising of the treated area.
- Following the laser treatment, activities, such as swimming, sports, or strenuous exercise should be avoided for the first 2–3 days, or until any redness, crusting, or blisters have resolved.
- For vein treatment, avoid exercises that can cause vasodilatation for 1 week posttreatment. Walking is encouraged after vein treatment.
- Avoid sun exposure throughout the course of treatment and use a broad-spectrum (UVA/UVB) sun block SPF 30 or greater when treatment area is exposed to the sun.
- Delayed blistering secondary to sun exposure has been noted up to 72 hours posttreatment.
- Do not use tanning beds.
- Avoid hot baths/whirlpools for 1 week following treatment (vein treatment).
- Following treatment, apply an aloe-based gel or equivalent to sooth and moisturize the skin.
- Normal skin care regimens, i.e., makeup, moisturizers, deodorant, and shaving may be resumed the day after treatment if there is no redness, blistering, or crusting present. If makeup is allowed, apply and remove it delicately. Excess rubbing can open the area and increase the chance of scarring. If the area blisters, extreme caution should be used when applying or removing makeup. The treated area is very delicate and should be treated with care.
- Discomfort, such as swelling or redness (lasting from a few hours to a couple of days), can be relieved with acetaminophen or ice packs (vein treatment).
- Instruct patient to contact physician if there is any sign of blistering or infection (redness, tenderness, or pus).
- Apply lotion to the area to prevent drying and crusting. Lotion applied following the laser treatment can have a soothing effect. If a crust develops, allow it to fall off naturally. Do not scratch or pick (vein treatment).
- An antibiotic cream should be used if there is any blistering or break in the skin.
- Treated pigmented lesions will likely crust then slough over the course of several days or weeks. Patients should not scratch or pick at crusts.

## Patient Documentation Forms

Informed Consent forms document the acceptance and confirmation of the treatment. They must be reviewed, understood, and signed by the patient prior to treatment. These forms review the topics discussed during consultation, acknowledge that the patient understands the procedure, and that all of the patient's questions have been answered.

Upon patient assessment, determine the need for medications or creams to be used pretreatment and/or throughout the treatment. Always review the *Pretreatment* and *Posttreatment Instructions* with your patient and confirm that they will adhere to these instructions throughout their treatment course.

*Treatment Records* track information about the treatment course, such as fluence and pulse width settings, as well as number of pulses used.

Tabbed Page 1:

Hair Removal



Treatment parameters routinely used in clinical practice for hair removal treatment are based on information provided by physicians using the Elite<sup>+</sup> laser, published articles, and results of clinical studies. Each patient is unique and should be evaluated prior to treatment for skin type. When in doubt about what parameters to use, it is recommended that a test spot be done. In this way, correct parameters can be determined. Use lower energy settings for darker skin types. The following information should be used as guidelines only, and should not take the place of your professional knowledge and training.

Laser hair removal is an established method of treating unwanted and/or excess hair. It may be helpful to define some of the common types of unwanted and/or excess hair.

*Hirsutism* is the presence of excessive bodily and facial hair, usually in a male pattern, especially in women presenting with facial hair in the beard and/or upper lip region.

*Hypertrichosis* is growth of hair in excess of the normal, such as abnormal distribution or in abnormal locations, often with genetic or ethnic origins. Aesthetics can be defined as unwanted hair as it relates to improving physical appearance.

### Hair-Growth Phases

It is important to understand the hair growth cycle and how this cycle varies in different parts of the body. There are three phases of hair growth defined below:

- *Anagen*: This is the phase when synthesis of hair takes place. This is an active growth phase in which the hair bulb is intact. The hair grows both upward and downward. During early anagen phase the bulb is closest to the surface of the skin allowing for the most effective treatment. The time span for this phase is measured in months/years.
- *Catagen*: This brief intermediate phase, measured in weeks, occurs between the anagen and telogen phases. During this phase the body absorbs the lower third of the follicle.
- *Telogen*: This is the resting phase. The hair bulb is no longer present. It is now a club hair that will fall out or be pushed out of the follicle by a new anagen growing hair. The time span for this phase is measured in weeks/months.

It is only during the growth phase or anagen phase that hair reacts to laser light. The goal in hair removal is for laser light to penetrate to the depth of the hair follicle during the anagen phase to achieve long-term results.

**Table 2—Hair Growth (Richards-Merhag Table) <sup>1</sup>**

	% testing hairs Telogen	% growing hairs Anagen	% transition hair Catagen	% uncertain growth stage	duration growth time Telogen	duration growth time Anagen	number follicles/ square cm	the hair daily rate of growth	total number of follicles in the area	approx. depth terminal follicle
<b>Head</b>										
Scalp	13	85	1–2	1–2	3–4 months	2–6 years	350	0.35 mm		3–5 mm
Eyebrows	90	10			3 months	4–8 weeks		0.16 mm		2–2.5 mm
Ear	85	15			3 month	4–8 weeks				
Cheeks	30–50	50–70					880	0.32 mm		2–4 mm
Beard/ Chin	20	70			10 weeks	1 year	500	0.38 mm		2–4 mm
Upper Lip	35	65			6 weeks	16 weeks	500			1–2.5 mm
<b>Body</b>										
Axillae	70	30			3 months	4 months	65	0.3 mm		3.5–4.5 mm
Trunk	NA	NA					70	0.3	425,000	2–4.5 mm
Pubic Area	70	30			3 months	4 months	70			3.5–5 mm
Arms	80	20			18 weeks	13 weeks	80	0.3 mm	220,000	2–4.5 mm
Legs	80	20			24 weeks	16 weeks	60	0.21 mm	370,000	2.5–4 mm
Breasts	70	30					65	0.35 mm		3–4.5 mm

**Note:** The second column of data in the Richards-Merhag table shows the percentage of hair follicles in the anagen growth phase according to body location. Since only follicles in anagen phase are treatable, this table illustrates why it is difficult to predict the success of laser treatment by the number of irreversible damaged hair follicles. While 70% of the hairs in the beard and chin region are in anagen phase (therefore an ideal site for laser treatment), only 20% of the hairs in the legs and thigh region meet this condition.

<sup>1</sup> M. Fuchs; Thermokinetic Selectivity—A New Highly Effective Method for Permanent Hair Removal: Experience with the LPIR Alexandrite Laser

## Patient Expectations

The Elite<sup>+</sup> laser is used to reduce or eliminate unwanted hair. Patients must understand that results vary with each person. Suggested number of treatments and treatment intervals are listed in the table below.

**Table 3—Hair Removal Treatment Intervals**

Body Part	Number of Treatments		Treatment Interval
	755 nm	1064 nm	
Lip	2–4	5–7	4 weeks
Face	4–6	5–7	4–6 weeks
Bikini Line	4–5	5–8	4–6 weeks
Arms	4–5	5–8	4–6 weeks
Underarms	4–5	5–8	4–6 weeks
Back	4–6	6–9	8–10 weeks
Legs	6–8	6–9	8–10 weeks

The laser pulse is often described as a wave of heat with the sensation of a pinprick. A topical anesthetic may be applied if necessary. A chiller is effective in reducing discomfort during laser treatment.

Erythema/follicular edema may be seen for 24–48 hours following the laser treatment. The treated hairs can take 14–21 days to exfoliate and may appear to be “growing” during this time.

## Pretreatment Procedure

Patients should avoid sun exposure, tanning beds, sunless tanning lotions, and tanning creams before, during, and after treatment. A broad-spectrum sun block (UVA/UVB) and SPF 30 or greater should be applied to the treatment area before any sun exposure.

If the patient presents with the slightest tan, it is recommended that treatment is delayed if using the Alex wavelength (755 nm) for 4 weeks or until the tan has significantly faded, or to use the Nd:YAG wavelength (1064 nm). When using the Nd:YAG laser, the patient should avoid sun exposure for 1 week before treatment and 1 week after treatment.

An increased incidence of blistering has occurred when patients with even slight tans have received laser treatment using the Alex wavelength.

When using the Alex laser, the patient should avoid sun exposure for at least 4 weeks before treatment, during the course of treatment, and at least 1 week after treatment.

Instruct the patient to shave the treatment areas within 24 hours before treatment. This is to remove the overlying hair from the treatment site. Thick, overlying hair will absorb the laser energy reducing the amount of energy absorbed by the hair follicle. Superficial thermal injury can occur as well due to overlying hair.

Patients with a history of hyperpigmentation can be prescribed a preparation containing topical bleaching cream 2–4 weeks prior to treatment.

Prior to receiving laser treatment, patients with a history of herpes or cold sores should receive appropriate treatment.

### Skin Cleaning

Prior to actual treatment, remove all makeup, lotions, deodorant, and oil from the area to be treated. Clean area to be treated thoroughly using a facial cleanser or mild soap and water, and then 70% isopropyl alcohol to remove the oils. Allow the skin to dry before treating.

## Treatment Procedures

**WARNING: Treating with excess energy levels can result in adverse effects, such as abnormal pigmentation and scarring.**

The highest safe energy density determined through test spots should be utilized. A slight increase in fluence (1–2 J/cm<sup>2</sup> for the 755-nm laser, and 5 J/cm<sup>2</sup> for the 1064 nm laser) should be tolerated for each consecutive treatment. When treating areas where the hair density is high, the fluence should be lowered based on treatment area and patient tolerance.

Pulse width should be determined based on patient skin type and hair type. Longer pulse durations should be used to treat darker skin types. In patients with skin types I–III, the pulse duration may be reduced to 10 ms or less to treat finer, thinner hair.

The number and length of treatment sessions depends on the size of the treatment area, the success rate of the treatment, and the patient's tolerance of the treatment.

A white or yellow, washable marker can be used to outline the area to be treated.

**WARNING: Do not use blue, black or brown markers to outline the treatment area; these colors will absorb laser energy and result in epidermal injury.**

Pulses are delivered in a linear fashion with no more than a 10% overlap between pulses.

The use of an air-cooling system is recommended during treatment. The air cooling system allows for the continuous flow of cold air on the treatment area to ease the sensation from the laser pulse. A thin coating of gel, aqueous or surgical lubricant, clear aloe, clear ultrasonic gel, or water can be used in conjunction with the system as a conduit for the laser energy and to increase cooling efficiency of the treatment site.

A clear ultrasonic gel chilled to a slushy consistency can be applied to the treatment area if a SmartCool air-cooling system is unavailable.

A decrease in fluence may be necessary in sensitive areas, such as the upper lip, shin, ankle and bikini areas.

Topical anesthetics may be applied to the treatment area prior to treatment. Be sure to wipe the area clean before laser treatment.

Double pulsing at the same spot is not recommended and can increase the chances of complications.

When changing pulse duration or fluence, constantly monitor skin reaction or repeat test spots.

Following the treatment, the Smart Cool air-cooling system or an ice pack can be applied to the treated area to ease the sensation from the laser pulses.

Treatments are scheduled at 4–8 week intervals for most body areas or when hair is actively growing. It is not recommended to re-treat any sooner than three weeks.

## Determination of Clinical Endpoint

A slight erythema and edema should be noted in the skin around the hair follicles. Increased erythema during treatment can indicate the energy is too high or the patient has had recent sun exposure.

If the treatment area has even the slightest tan, the erythema response with the 755-nm wavelength is more intense and can lead to a purpuric response (blue-gray discoloration). If blistering occurs, treatment should be stopped immediately. Both purpura and blistering are signs of excessive energy. Treatment should be discontinued or fluence should be lowered immediately. Treatment may resume when the tan has faded, or the 1064-nm wavelength may be used.

## Suggested Treatment Parameters—Hair Removal

The highest fluence tolerable for the individual patient should be utilized during laser treatment. The fluence should be determined through test spots. Treatment parameters routinely used in clinical practice, and shared by clinicians, are detailed in the following tables. The following information should be used as guidelines only, and should not take the place of your professional knowledge and training.

**Table 4—Treatment Parameters—Hair Removal, Alex Only**  
**Not recommended for tanned skin**

Skin Type*	Hair Type	Spot Size (mm)	Fluence (J/cm <sup>2</sup> )	Pulse Width** (ms)
I-III	Coarse Hair	10	16-30	20
	Medium Hair		16-35	15
	Fine Hair		16-35	10-5
I-III	Coarse Hair	12	16-30	20
	Medium Hair		16-35	15
	Fine Hair		16-35	10-5
I-III	Coarse Hair	15	16-30	20
	Medium Hair		16-30	15
	Fine Hair		16-30	10-5
I-III	Coarse Hair	18	15-20	20
	Medium Hair		15-20	15
	Fine Hair		15-20	10-5
I-III	Coarse Body Hair	20	13-17	20
	Medium to Fine Body Hair		13-17	15-5
I-III	Coarse Body Hair	22	10-14	20
	Medium to Fine Body Hair		10-14	15-5
I-III	Coarse Body Hair	24	7-11	20
	Medium to Fine Body Hair		7-11	15-5

\* Only pigmented hair for skin type I.  
\*\* Reduce pulse width based on the hair diameter.

NOTES:  
Longer pulse widths (20 ms) should be used at initial treatment. Fluence can be adjusted in conjunction with pulse width. When changing from a 20 ms pulse to a 5 ms pulse, decrease fluence by 2 J/cm<sup>2</sup>.  
Due to depth of penetration of the larger spot sizes, test spots are recommended. Fluence should be reduced if changing from a smaller to a larger spot size.  
Maximum fluence is dependent on repetition rate.

**Table 5—Treatment Parameters—Hair Removal, Nd:YAG Only**

<b>Skin Type*</b>	<b>Hair Type</b>	<b>Spot Size (mm)</b>	<b>Fluence (J/cm<sup>2</sup>)</b>	<b>Pulse Width** (ms)</b>	
I-III	Coarse	10	45-60	20	
	Medium-Fine			15-10	
IV-VI	Coarse		45-60	40	
	Medium-Fine			30-20	
I-III	Coarse	12	35-50	20	
	Medium-Fine			15-10	
IV-VI	Coarse		35-50	40	
	Medium-Fine			30-25	
I-II	Coarse	15	30-35	20	
	Medium-Fine			15-10	
III-IV	Coarse		30-35	40	
	Medium-Fine			30-20	
V-VI	Coarse		30-35	40	
	Medium-Fine			30	
I-II	Coarse-Fine		18	15-24	20-10
III-IV	Coarse				40
	Medium-Fine	30-20			
V-VI	Coarse	15-24		40	
	Medium-Fine		30		
I-IV	Coarse (Body)	20	16-19	40	
	Medium-Fine (Body)			30-20	
V-VI	Coarse (Body)		16-19	40	
	Medium-Fine (Body)			30	
I-IV	Coarse (Body)	22	13-16	40	
	Medium-Fine (Body)			30-20	
V-VI	Coarse (Body)		13-16	40	
	Medium-Fine (Body)			30	
I-IV	Coarse	24	10-13	40	
	Medium-Fine (Body)			30-20	
V-VI	Coarse		10-13	40	
	Medium-Fine (Body)			30	

**\*Only pigmented hair for Skin type I.**

**\*\*Reduce pulse width based on the hair diameter.**

**NOTES:**

Longer pulse widths should be used at initial treatment. Pulse widths may be shortened based on skin type, hair diameter, and hair density. Facial hair may need a longer pulse width for first 1-2 treatments and lower fluence range.

Due to the depth of penetration of the larger spot sizes, test spots are recommended. Fluence should be reduced if changing from a smaller to a larger spot size.

Maximum fluence is dependent on the repetition rate.

## Posttreatment Skin Care

Patients should receive posttreatment skin care instructions following each laser treatment. Sample posttreatment instruction sheets are included.

- Lotion should be applied to the area for rehydration. If crusting develops, it should be allowed to fall off naturally. Do not scratch or pick crust. Lotion applied following laser treatment can have a soothing effect.
- An antibiotic cream of physician's choice should be used if there is any blistering or break in the skin.
- The patient should be instructed to contact the office if there is any evidence of infection (redness, tenderness, or pus).
- Do not shave treated area for 1 to 3 days posttreatment if crusting or blistering occurs.
- Normal skin care regimens, i.e., makeup, moisturizers, deodorant, and shaving may be resumed the day after treatment if there is no redness, blistering, or crusting present. If makeup is allowed, apply and remove it delicately. Excess rubbing can open the area and increase the chance of scarring. If the area blisters, extreme caution should be used when applying or removing makeup. The treated area is very delicate and should be treated with care.
- Wash treated area gently with mild soap and water. If treated area is irritated, the area should not be rubbed with a face cloth or towel. The area should be gently patted dry.
- If the area blisters, extreme caution should be used when applying or removing makeup. The treated area is very delicate and should be treated with care.
- Rough removal of makeup can increase the incidence of posttreatment complications.
- Avoid sun exposure throughout the course of treatment and use a broad-spectrum (UVA/UVB) sun block SPF 30 or greater when treatment area is exposed to the sun.
- Delayed blistering secondary to sun exposure has been noted up to 72 hours posttreatment.
- Following the laser treatment activities, such as swimming, sports and/or strenuous exercise should be avoided for the first 2–3 days, or until any redness, crusting, or blisters have resolved.

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Tabbed Page 2:

Skin Treatment



Treatment parameters routinely used in clinical practice for facial skin treatments are based on information provided by physicians using the Elite<sup>+</sup> laser, published articles, and results of clinical studies. Each patient is unique and should be evaluated prior to treatment for skin type. When in doubt about what parameters to use, it is recommended that a test spot be done. In this way, correct parameters can be determined. Use lower energy settings for darker skin types. The following information should be used as guidelines only, and should not take the place of your professional knowledge and training.

Facial skin treatment is for patients with skin types I–V with environmental skin damage, a red or ruddy complexion, discrete telangiectasia, uneven pigmentation or uneven skin texture.

### **Pretreatment Procedure**

Patients should avoid sun exposure, tanning beds, sunless tanning lotions, and tanning creams before, during, and after treatment. A broad-spectrum sun block (UVA/UVB) and SPF 30 or greater should be applied to the treatment area before any sun exposure.

Prior to receiving laser treatment, patients with a history of herpes or cold sores should receive appropriate treatment.

### **Skin Cleaning**

Prior to actual treatment, remove all makeup, lotions, deodorant, and oil from the area to be treated. Clean the area to be treated thoroughly using a facial cleanser or mild soap and water, and then with 70% isopropyl alcohol to remove the oils. Allow the skin to dry before treating.

## Treatment Procedure

When treating skin, refer to Table 6 on page 31 for treatment parameters routinely used in clinical practice.

**NOTE:** Cooling is not recommended.

1. Divide the facial treatment area into approximately four quadrants. Treat one quadrant at a time.
2. Hold the tip of the handpiece approximately 1–2 cm from the surface of the skin to be treated. The laser beam is defocused with a beam size of about 8 mm in diameter.
3. Move the handpiece back and forth rapidly (both from top-to-bottom and from left-to-right) making passes over the treatment sections. Treating with the laser in this manner should result in an even distribution of pulses. When distributing the pulses evenly, the heat buildup will be uniform and comfortable. If too much time is spent in a small area, or the handpiece is moved too slowly, the patient may become uncomfortable.
4. After an area has been treated, treatment can begin on the next section with the same technique. The patient should feel warm, but never hot.
5. When treating near the eye, the laser beam should always be directed away from the eye and applied only to the skin outside of the orbital rim. Skin at the edge of the orbital rim can be pulled away from the eye, while the eye shield is being held in place, so that it can be treated outside of the orbital rim. Be aware that there is a distinct risk of acute anterior uveitis from improper eye protection in addition to possible retina damage.
6. As treatments in the ocular region (below the eyes, the bridge of the nose, and the temples) require special care, it is often convenient to treat those areas first before moving on to the other areas. Other sensitive areas, such as just beneath the nose and over the beard area, may require the use of fewer pulses or lower fluences for some patients. When treatments are performed near the mouth, patients should be instructed to close their mouths to avoid accidental exposure of their teeth to the laser beam.
7. Immediately following treatment, the area may appear flushed and warm, but there should be no bruising. The redness should fade over the course of a few hours and should not be enough to interfere with daily activities. If desired, use a cooling method posttreatment.

When treating sun-damaged skin, refer to Table 7 on page 31 for treatment parameters routinely used in clinical practice.

**NOTE:** Cooling should be used.

1. Deliver pulses in a linear fashion with a 10% overlap.
2. Do 2 to 3 passes in opposite directions.

**WARNING: To avoid eye injury from laser light, use extreme caution when treating near the eyes. Be sure that the patient has appropriate eye protection for the wavelength being used.**

## Suggested Treatment Parameters—Skin Treatment

The highest fluence tolerable for the individual patient should be utilized during laser treatment. The fluence should be determined through test spots. Treatment parameters routinely used in clinical practice are detailed in the following table. The following information should be used as guidelines only, and should not take the place of your professional knowledge and training.

**IMPORTANT: Treating in the beard area of the face and neck may cause blistering and/or irregular hair loss and is not recommended.**

**Table 6—Treatment Parameters—Skin with Nd:YAG (1064 nm)**

Skin Types I-IV (No Cooling)						
Area	Skin Type	Total Pulses (per Quadrant)	Spot Size (mm)	Fluence (J/cm <sup>2</sup> )	Pulse Duration (ms)	Rep. Rate (Hz)
Full Face	I-III	1000-2000	5	10-18	0.4	5
	IV	1000-2000	5	10-15	0.4	5
Neck	I-III	1000-2000	5	10-18	0.4	5
	IV	1000-2000	5	10-15	0.4	5
Chest/Hands	I-III	1000-2000	5	10-18	0.4	5
	IV	1000-2000	5	10-15	0.4	5

**NOTES: Cooling not recommended during the treatment.**  
 When treating skin for fine lines and wrinkles work in quadrants. The skin should turn pink. If there is no visual reaction, continue with additional pulses. Pulses are not an absolute as each individual may respond differently. The end point is erythema or the patient states that they are starting to feel hot.

**Table 7—Treatment Parameters—Sun-Damaged Skin with Nd:YAG (1064 nm)**

Skin Types I-IV (Cooling Required)						
Skin Type	Number of Treatments	Treatment Interval	Spot Size (mm)	Fluence (J/cm <sup>2</sup> )	Pulse Duration (ms)	Rep. Rate (Hz)
I-III	3-6	4-6 weeks	7, 10	50	50	1-2.0
IV	3-6	4-6 weeks	7, 10	30-40	50	1-2.0

**NOTES:**  
 Apply topical anesthesia if desired. **Aggressive cooling during the treatment is recommended.**  
 Deliver pulses in a linear fashion with 10% overlap. Make 2-3 passes if tolerated. Type IV and neck areas may need lower fluence levels and fewer passes  
 4-6 treatments recommended.  
 Treating over men's beards may cause permanent and irregular hair loss.

## **Posttreatment Skin Care**

Following treatment, apply an aloe-based gel or equivalent to sooth and moisturize the skin. Avoid sun exposure throughout the course of treatment and use a broad-spectrum (UVA/UVB) sun block SPF 30 or greater when treatment area is exposed to the sun.

Tabbed Page 3:  
Pigmented Lesions



# Chapter 5 Treatment—Pigmented Lesions

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Treatment parameters routinely used in clinical practice for pigmented lesions treatment are based on information provided by physicians using the Elite<sup>+</sup> laser, published articles, and results of clinical studies. Each patient is unique and should be evaluated prior to treatment for skin type. When in doubt about what parameters to use, it is recommended that a test spot be done. In this way, correct parameters can be determined. Use lower energy settings for darker skin types. The following information should be used as guidelines only, and should not take the place of your professional knowledge and training.

## Pretreatment Procedure

Patients should avoid sun exposure, tanning beds, sunless tanning lotions, and tanning creams before, during, and after treatment. A broad-spectrum sun block (UVA/UVB) and SPF 30 or greater should be applied to the treatment area before any sun exposure.

Prior to receiving laser treatment, patients with a history of herpes or cold sores should receive appropriate treatment.

Suspicious pigmented lesions should not be treated.

## Skin Cleaning

Prior to actual treatment, remove all makeup, lotions, deodorant, and oil from the area to be treated. Clean the area to be treated thoroughly using a facial cleanser or mild soap and water, and then with 70% isopropyl alcohol to remove the oils. Allow the skin to dry before treating.

## Treatment Procedure

The highest energy density determined through test spots should be utilized. Pulses are delivered in a linear fashion with no more than a 10% overlap between pulses. A second pass is suggested over each lesion. No cooling should be used during treatment; but cooling may be used only posttreatment for patient comfort.

**WARNING: To avoid eye injury from laser light, use extreme caution when treating near the eyes. Be sure that the patient has appropriate eye protection for the wavelength being used.**

When treating near the eye, the laser beam should always be directed away from the eye and applied only to the skin outside of the orbital rim. Skin at the edge of the orbital rim can be pulled away from the eye, while the eye shield is being held in place, so that it can be treated outside of the orbital rim. Be aware that there is a distinct risk of acute anterior uveitis from improper eye protection in addition to possible retina damage.

Treatment in the ocular region (below the eyes, the bridge of the nose, and the temples) requires special care, so it may be easier to treat this area before treating other areas.

Other sensitive areas, such as just beneath the nose and over the beard area, may require the use of fewer pulses or lower fluences for some patients.

When treatments are performed near the mouth, patients should be instructed to close their mouths to avoid accidental exposure of their teeth to the laser beam.

Within 5–10 minutes of treatment, erythematous flare, edema, and hyperpigmentation will be evident around the treated pigmented lesions, but there should be no bruising. Erythema and edema may be evident for several hours. Lesions should change color within 5–10 minutes posttreatment.

## Suggested Treatment Parameters—Pigmented Lesions

The highest fluence tolerable for the individual patient should be utilized during laser treatment. The fluence should be determined through test spots. Darker lesions will respond faster to treatment and will need less energy than lighter lesions. Treatment parameters routinely used in clinical practice, and shared by clinicians, are detailed in the following table. The following information should be used as guidelines only, and should not take the place of your professional knowledge and training.

**Table 8—Treatment Parameters, Pigmented Lesions with Alex (755 nm)**

Skin Types I, II and III (Cooling Required Posttreatment)			
Skin Type	Spot Size (mm)	Fluence (J/cm <sup>2</sup> )	Pulse Width (ms)
I-II	5	18-25	0.5
III	5	15-25	0.5
I-II	7, 10	20-24	5.0
III	7, 10	18-24	5.0

### Posttreatment Skin Care

Following treatment, apply an aloe-based gel or equivalent to soothe and moisturize the skin.

Avoid sun exposure throughout the course of treatment and use a broad-spectrum (UVA/UVB) sun block SPF 30 or greater when treatment area is exposed to the sun.

Treated lesions will likely crust, then slough over the course of several days or weeks. Patients should not scratch or pick at crusts.

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Tabbed Page 4:  
Vascular Treatment



## Chapter 6 Treatment—Vascular Treatment

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Treatment parameters routinely used in clinical practice for vein treatment are based on information provided by physicians using the Elite<sup>+</sup> laser, published articles, and results of clinical studies. Each patient is unique and should be evaluated prior to treatment for skin type. When in doubt about what parameters to use, it is recommended that a test spot be done. In this way, correct parameters can be determined. Use lower energy settings for darker skin types. The following information should be used for guidelines only, and should not take the place of your professional knowledge and training.

## Pathophysiology of Veins—Telangiectasia

As noted by Hexsel and Alegre, the term telangiectasia was first introduced by Von Graf to describe a superficial vessel of the skin visible to human eye. Individually, these veins can measure from 0.1 to 3 mm in diameter and represent an expanded venule, capillary or arteriole. Telangiectasia can originate from arterioles or venules.

Telangiectasia can be classified into four types based on clinical appearance:

- **Sinus or Simple (Linear):** A red linear telangiectasia that occurs on the face, especially the nose or legs. In addition, a blue linear or anastomosing telangiectasia may be found often on the legs.
- **Arborizing:** A treelike appearance of capillary vessels in an inflamed condition.
- **Spider or Star:** A red, superficial telangiectasia arising from a central filling vessel of arteriolar origin. It is a focal network of dilated capillaries seen chiefly in pregnancy and hepatic cirrhosis. These are characteristically 0.1–1.0 mm in diameter and red to cyanotic in color.
- **Punctiform (Papular):** Characterized by small circumscribed, superficial elevation of the skin, and are the results of dilated vessels. These are generally less than 2 mm in diameter, and frequently present in patients with collagen vascular disease.<sup>2</sup>

Telangiectasia is generally progressive. However, certain patients may experience spontaneous stabilization of the condition in early stages. Treatment of early stage disease may prevent the progression and cause regression of the underlying disease process.

Telangiectasia is one of the most common vascular lesions seen by physicians with a reported incidence of 30% in the general population.

More specifically, leg vein pathology affects up to 80 million adults in the United States alone. Similar occurrences have been reported in Western Europe. Women tend to develop leg vein pathology 3 to 4 times as often as men with reported estimates ranging from 29–41% and 6–15% respectively.

The Elite<sup>+</sup> laser system delivers the combination of wavelength, high fluence and long pulses required to effectively treat veins up to 3 mm in diameter. Precise custom treatment of the vessel can be achieved while similar surrounding structures, such as the epidermis, remain largely unharmed.

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<sup>2</sup> Doris Hexsel, MD, Porto Alegre, RS, "Ethnic and Topographic Aspects: FL169, Buttocks and Thighs," Abstracts, IACD Congress Rio, 2000, <<http://www.dermato.med.br/iacd/congress/papers/papers-f.htm>> (27 October 2005).

## Determination of Clinical Endpoint

When treating veins, a shift in color or the appearance of the vessel is considered the clinical endpoint. Consider these examples.

- Red vessels may show a shift in color darkening to a reddish purple response with associated erythema (a slight redness). This color change will not dissipate following treatment.
- Blue vessels may appear to constrict or disappear following the laser pulse.
- Whitening, a blanching response, or blistering following the laser pulse is an indication that energy levels are too high and should be decreased accordingly.

## Pretreatment Procedure

Patients should avoid sun exposure, tanning beds, sunless tanning lotions, and tanning creams for 1 week before treatment, during the course of laser treatment and 1 (one) week after the treatment. NOTE: If self-tanning cream evident after wiping with an alcohol swab, wait 1 (one) more week before treating.

A broad-spectrum sun block (UVA/UVB) and SPF 30 or greater should be applied to the treatment area before any sun exposure.

### Skin Cleaning

Prior to actual treatment, remove all makeup, lotions, deodorant, and oil from the area to be treated. Clean the area to be treated thoroughly using a facial cleanser or mild soap and water, and then with 70% isopropyl alcohol to remove the oils. Allow the skin to dry before treating.

## Treatment Procedures

**WARNING: Treating with excessive energy levels can result in adverse effects, such as abnormal pigmentation and scarring. Test pulses are mandatory to determine proper tolerance to fluence.**

Pulses are delivered in a linear fashion with less than 10 percent overlap between pulses. Pulses can be delivered through a coolant material, such as aqueous gel or a gel sheet. Energy adjustments to reach clinical endpoint should be made. Do not double pulse when using the Nd:YAG laser; this can lead to scarring.

When treating telangiectasia, trace the vessel with laser pulses, beginning at the distal end of the vessel branch and working to the proximal end toward the larger feeding vessel. This will disrupt the blood flow and subsequently shut down the offending vessel. The best results are achieved when the entire vessel or group of vessels is treated.

Veins may require 2 to 3 treatments. When treating the large, deep leg veins, start with the 7-mm spot size, to treat deep feeding vessels, and then use the 5-mm spot on the more superficial leg veins. On the second treatment, start with the 5-mm spot size, and then use the 3-mm spot size.

Aggressive cooling with a chiller is recommended. A coating of gel, ultrasound gel, surgical lubricant, or clear aloe should be used in conjunction with the system as a conduit for the laser energy. If the patient finds air-cooling to be uncomfortable, turn it down. Use a cold pack to provide additional cooling both pretreatment and posttreatment, but do not use ice. It is recommended to use cold packs pretreatment with larger veins.

## Treatment Parameters—Vascular Treatment

Treatment parameters routinely used in clinical practice are detailed in the following table. The following information should be used for guidelines only, and should not take the place of your professional knowledge and training.

**IMPORTANT: Treating in the beard area of the face and neck may cause blistering and/or irregular hair loss and is not recommended.**

**Table 9—Treatment Parameters—Vascular Treatment with Nd:YAG (1064 nm)**

Vessel Type	Spot Size (mm)	Vessel Diameter (mm)	Pulse Width (ms)	Fluence (J/cm <sup>2</sup> )
Facial Telangiectasia (single pass only)	3	0.5 or greater	30–10	120–180
Nose Telangiectasia (single pass only)	3	0.5 or greater	30–10	100–150
Fine Leg Telangiectasia/Spider Veins	7	1.0–3.0	100–30	120–160
	5	0.5–1.0	50–10	120–180
	3	0.5 or greater	40–10	120–180

**NOTES:**

Red vessels require a shorter pulse width. The darker and larger vessels will require a longer pulse. Use 10–15 ms on red vessels for fair skin types I, II and III.

When treating the larger deeper leg vein, start with the 7-mm spot size, and then use the 5 mm spot on the more superficial leg veins. On the second treatment start with the 5 mm spot size, and then use the 3 mm spot size.

Select fluence based on skin type and by performing test spots. Smaller facial veins may require the use of higher fluence, while larger veins may require a longer pulse duration and a larger spot size to increase depth of penetration.

Immediately following treatment, the area may appear flushed and warm, but there should be no bruising. The redness should fade over the course of a few hours and should not be enough to interfere with daily activities.

To relieve any discomfort, use a chiller and/or apply aloe vera gel to the treated areas immediately after treatment. Use cold packs posttreatment on all veins.

## Posttreatment Skin Care

- Apply antibiotic ointment of physician's choice to the area to prevent drying or crusting and to soothe the skin. If a crust develops, allow it to fall off naturally.
- Avoid hot baths or whirlpools for one week following treatment.
- If blistering or crusting occur, do not shave for 1 to 3 days.
- Avoid sun exposure, tanning beds, sunless tanning lotions, and tanning creams before, during, and after treatment. A broad-spectrum sun block (UVA/UVB) and SPF 30 or greater should be applied to the treatment area before any sun exposure.
- Avoid exercises that can cause vasodilatation for one week posttreatment. Walking is encouraged.
- If makeup is allowed, it must be applied and removed delicately. Excess rubbing can open the area and increase the chance of scarring.
- Discomfort, such as swelling or redness (lasting from a few hours to a couple of days), can be relieved with acetaminophen or ice packs.
- Instruct patient to contact physician if there is any sign of blistering or infection (redness, tenderness, or pus).

## Follow-up Treatments

Follow-up vascular treatments should be scheduled at every 4 weeks for facial vessels and at least 8 weeks for leg veins.

The following pages contain samples of treatment forms that can be used to document laser treatments. Number of pulses, patient reaction, complications, and comments should be recorded. Also provided are samples of forms, such as informed consent and pretreatment and posttreatment instructions. These are provided for your convenience.

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I request and authorize \_\_\_\_\_ or a designated, licensed healthcare professional, using the Elite+ laser, to perform a procedure on me known as:

\_\_\_\_\_.

The nature and effects of the procedure, the risks, involved, as well as alternative methods of treatment have been fully explained to me by the physician or designated person and I understand them.

I have been thoroughly and completely advised regarding the procedure. Because I understand that the practice of medicine and surgery is not an exact science and no results have been guaranteed. I certify that no guarantees have been made by anyone regarding the procedure(s) I have requested and authorized. I understand that possible adverse effects may include bleeding, infection, scarring, skin contour irregularities, asymmetry, allergic reaction and topical anesthesia related complications can occur and should be discussed and understood.

I understand the importance of pretreatment and posttreatment instructions and that my failure to comply with these instructions may increase the possibility of complications.

I agree to have photographs taken of the area to be treated before/after procedure  Yes  No

I certify that I have read the above, that the explanations referred to therein were made to my satisfaction, and that I fully understand such explanations and the above information.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
(Patient or person authorized to consent for the patient)

Witness: \_\_\_\_\_ Date: \_\_\_\_\_

The Elite<sup>+</sup> laser produces an intense burst of light that is absorbed by the hair follicle. All personnel in the treatment room, including myself, will wear protective eyewear to prevent eye damage from this intense light.

The sensation of the light is uncomfortable and may feel like a slight pinprick or sensation of heat, which may last for a few hours.

Following the procedure, the treated area may be red and swollen for a few hours or a few days. Blistering may occur. The area should be treated delicately following treatment. Multiple procedures may be necessary. I have been informed that hyperpigmentation (darkening of the skin) and hypopigmentation (lightening of the skin) are possible risks of the procedure. I understand that sun exposure and not adhering to the post-care instructions provided to me may increase my chance of complications. I will care for the skin area(s) by gently cleaning daily with a gentle cleanser and applying a broad spectrum (UVA/UVB) sun block SPF 30 or greater.

I agree to have photographs taken of the area to be treated before/after procedure  Yes  No

I have read and understand all information presented to me before signing this consent. I have also been given the opportunity to ask questions.

Patient: \_\_\_\_\_ Date: \_\_\_\_\_  
(or legal guardian)

Witness: \_\_\_\_\_ Date: \_\_\_\_\_

The procedure to be performed is the Elite<sup>+</sup> laser treatment for leg veins. I understand that the results from the treatment vary with each individual. The purpose of this treatment is to attempt to remove, fade, or significantly lighten the veins. This treatment is not a cure for vein disease, nor will it prevent further veins from developing. Multiple treatments may be necessary.

Other methods available to treat these vessels include: electrocautery, surgery, injection of sclerosing agents, and other laser or filtered light modalities.

The laser produces an intense burst of light that is absorbed by the targeted abnormal blood vessel without causing damage to the surrounding tissue. All personnel in the treatment room including myself will wear protective eyewear to prevent eye damage from the intense laser light.

The sensation of the light is uncomfortable and may feel like a moderate to severe hot pinprick or burst of heat that lasts for only a few seconds. If the physician elects to use some form of anesthesia, then all options will be discussed with me. The area may appear reddish-purple in discoloration. Following treatment, the area should be treated delicately.

I agree to have photographs taken of the area to be treated before/after procedure  Yes  No

I have been informed that blistering, scarring, hypopigmentation (lightening of the skin) and hyperpigmentation (darkening of the skin) are possible risks and complications of this procedure. I understand that sun exposure and not adhering to post care instructions may increase my chance of side effects. I will care for the skin area(s) by gently cleaning daily with a gentle, antibacterial cleanser and applying a broad spectrum (UVA/UVB) sun block SPF 30 or greater.

This consent is a written confirmation of a discussion I have had with my physician and/or nurse regarding the procedure. I certify that I have read and understood all information presented to me before signing this consent form. I have also been given the opportunity to ask questions.

Therefore, I authorize Dr. \_\_\_\_\_ to perform laser treatment

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Patient: \_\_\_\_\_ Date: \_\_\_\_\_  
(or legal guardian)

Witness: \_\_\_\_\_ Date: \_\_\_\_\_

**Description of Treatment**

An appropriate treatment for \_\_\_\_\_ is laser treatment using the Alexandrite 755 nm laser. The overall goal is to provide satisfactory treatment for the reduction or elimination of \_\_\_\_\_.

**Procedure**

A brief medical history will be taken and an examination of your skin will be performed. For at least 4 (four) weeks prior to treatment, you need to avoid sun exposure, tanning beds and self-tanning (sunless) lotions/sprays. If you are obviously tanned, you may not be treated. If you have a history of herpes, medications to reduce the risk of an outbreak will be prescribed as appropriate.

On the day of the treatment, you may be required to wear comfortable clothes and shoes. You will be asked to remove eyeglasses or jewelry. You may be asked to lie on an examination table. Areas to be treated may be marked prior to procedure. You will need to wear special eye goggles to protect your eyes against exposure to laser light. If the area is not anesthetized, you may experience discomfort from the laser treatment, which has been described as the sensation of being “snapped with a rubber band”. Local swelling, crusting and redness may also result from the treatment. You will care for the skin area(s) by gently cleaning daily with a gentle cleanser and applying a broad spectrum (UVA/UVB) sun block SPF 30 or greater. The course of treatments may require a number of treatments. Following treatment, you will be evaluated within a time determined by the physician. The actual treatment time and number of treatments will be dependent on condition being treated.

I certify that I have read and understood all information presented to me before signing this consent form. I have also been given the opportunity to ask questions.

I agree for a treated area to be photographed before/after the procedure  Yes  No

Therefore, I authorize Dr. \_\_\_\_\_ to perform laser treatment

\_\_\_\_\_

Patient: \_\_\_\_\_ Date: \_\_\_\_\_  
(or legal guardian)

Witness: \_\_\_\_\_ Date: \_\_\_\_\_

**Description of Treatment**

An appropriate treatment for \_\_\_\_\_ is laser treatment using the Nd:YAG 1064nm laser. The overall goal is to provide satisfactory treatment for the reduction or elimination of \_\_\_\_\_.

**Procedure**

A brief medical history will be taken and an examination of your skin will be performed. For one week prior to treatment, you need to avoid sun exposure, tanning beds and self-tanning (sunless) lotions/sprays. If you have a history of herpes, medications to reduce the risk of an outbreak will be prescribed as appropriate.

You will be asked to remove eyeglasses or jewelry. You may be asked to lie on an examination table. Areas to be treated may be marked prior to procedure. You will need to wear special eye goggles to protect your eyes against exposure to laser light. If the area is not anesthetized, you may experience discomfort from the laser treatment, which has been described as the sensation of being “snapped with a rubber band.” Local swelling, crusting and redness may also result from the treatment. You will care for the skin area(s) by gently cleaning daily with a gentle cleanser and applying a broad spectrum (UVA/UVB) sun block SPF 30 or greater. The course of treatments may require a number of treatments. Following treatment, you will be evaluated within a time determined by the physician. The actual treatment time and number of treatments will be dependent on condition being treated.

I certify that I have read and understood all information presented to me before signing this consent form. I have also been given the opportunity to ask questions.

I agree for a treated area to be photographed before/after the procedure  Yes  No

Therefore, I authorize Dr. \_\_\_\_\_ to perform laser treatment

Patient: \_\_\_\_\_ Date: \_\_\_\_\_  
(or legal guardian)

Witness: \_\_\_\_\_ Date: \_\_\_\_\_

**Precautions Before and After Laser Treatment**

The area being treated cannot be exposed to the sun. For 1064-nm wavelength treatment, avoid sun exposure for 1 (one) week prior, during, and 1 (one) week after treatment. For 755-nm wavelength treatment, avoid sun exposure for at least 4 (four) weeks prior, during and at least 1 (one) week after the treatment. A broad-spectrum (UVA/UVB) sun block of SPF 30 or higher should be applied whenever exposed to the sun.

**Expectations Following Treatment**

Immediately following treatment, the area may show a slight erythema with some swelling. Blistering may occur.

**General Skin Care**

During the healing phase, the area must be treated delicately. Do not rub, scratch, or pick. If a crust develops, let it fall off on its own.

Apply a thin layer of \_\_\_\_\_ ointment to the treated area several times a day to keep area moist.

Do not scrub the area, pat the area dry. Do not shave over the area if swelling, crusting or scabbing is present.

If swelling occurs, apply ice. Wrap the ice in a soft cloth. Discomfort or stinging may be relieved with acetaminophen.

If makeup is allowed, it must be applied and removed delicately. Excess rubbing can open treated area increasing the chance of scarring.

Avoid sports and/or strenuous exercises for 2–3 days following treatment for hair removal and 7–10 days for veins. Walking is encouraged.

In case of signs of infection (pus, tenderness, fever), contact the office immediately.

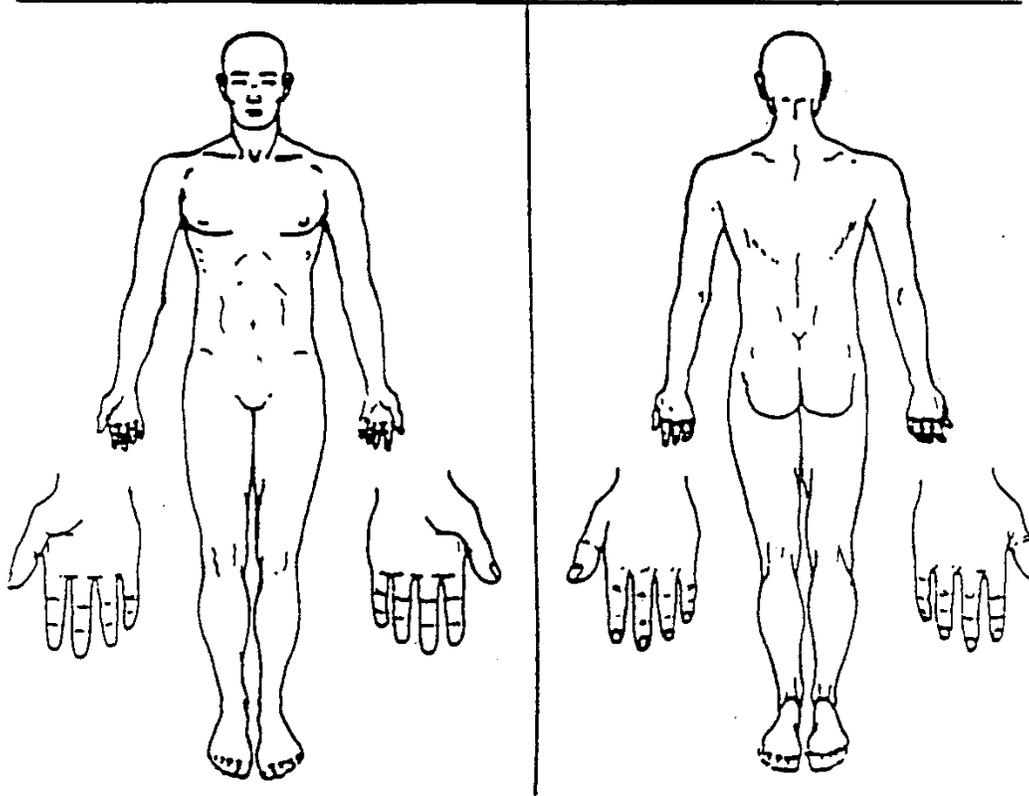
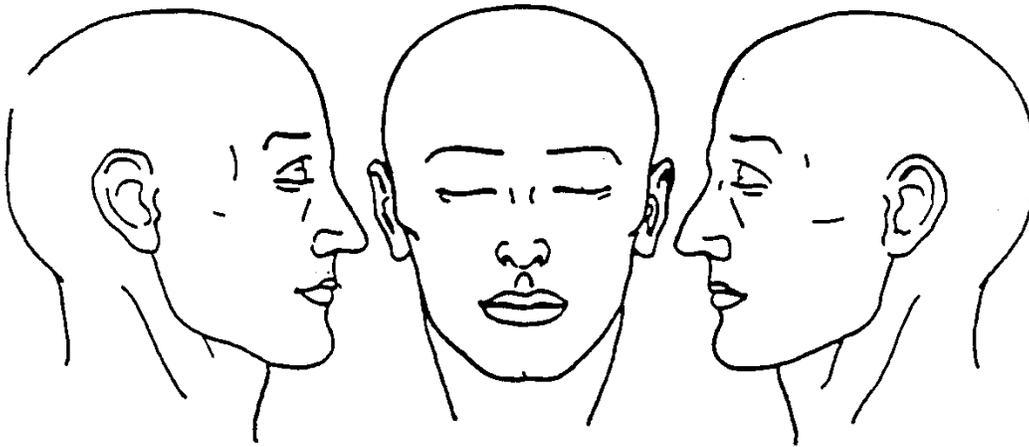
Avoid sun exposure throughout the course of treatment and use a broad-spectrum (UVA/UVB) sun block SPF 30 or greater when treatment area is exposed to the sun.

The treated hairs will exfoliate or push out in approximately 2-4 weeks.

Posttreatment skin care instructions must be followed to prevent any complications. Please contact the office with questions or concerns regarding your treatment.







Initials: \_\_\_\_\_ Comments: \_\_\_\_\_

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