



## Physician Recommended Parameters



# Lumenis® IPL® Quantum System – Physician Recommended Parameters

These IPL parameters are provided as a guide, and are not a substitute for clinical observation of laser-tissue interaction and clinical endpoints. Training is available for the Lumenis IPL systems. Contact your Lumenis representative.

This is a supplement to and not a substitute for your IPL system operator manual. Please read and fully understand your IPL operator manual before operating the system.

**Note:** Test spots should be performed on all patients before treatment.

## Instructions for Test Spots

Look for positive clinical endpoints:

- Vascular Lesions:
  - Disappearance of the vessel
  - Any vascular changes (darkening, brightening, smudging)
- Pigmented Lesions
  - Darkening of the lesion
- Hair Removal
  - Perifollicular edema and erythema

Immediate purpura, pronounced edema, blistering, graying of the skin or excessive discomfort are indications that the parameters are too aggressive.

## IPL® Quantum™ Presets

IPL Quantum presets are based upon input from experienced users. When used with good clinical judgment, these settings will be safe and effective on a broad range of patients.

1. Select treatment head based on treatment application.

Treatment	Application	Filter
SR (skin rejuvenation)	Superficial vascular lesions	560 nm
	Epidermal pigmented lesions	560 nm
SR for darker skin types	Superficial vascular lesions Epidermal pigmented lesions	590 nm
	Deeper and/or larger vascular lesions or deeper pigment (melasma)	590 nm
	Collagen stimulation	640 or 645 nm
HR (hair removal)	Lighter skin I-II	645 nm
	Darker skin III-V	755 nm

2. Select program based on patient's skin type and lesion density.
  - Program 1: Skin type I-II
  - Program 2: Skin type III-IV and skin type II if high-lesion density
  - Program 3: Skin type IV-V and skin type III if high-lesion density

### **Advanced Use: Setting Your Own Parameters**

While most patients will benefit from system presets, some patients may achieve better results with parameters more tailored to their skin types and conditions.

#### **Understanding Your Parameters:**

- **Fluence**—Fluence is your best indicator of clinical efficacy. As fluence increases, efficacy increases, but so does the risk of adverse events and the need to provide increased epidermal protection.
- **Pulse Width**—For selective photothermolysis, the pulse width should be matched to the target. Smaller targets will require shorter pulse widths, while longer pulse widths can be used with larger targets.
- **Multiple pulsing and pulse delay**—Increasing the number of pulses and increasing the pulse delay provide added epidermal protection and should be used when treating darker skin, a higher density lesion or at high fluence.
- Use caution when treating over any bony prominence.

### **Physician Recommended Clinical Tips**

**Skin Treatments Using IPL Photorejuvenation and Complementary Therapies:** IPL used in combination with several other modalities has been recently reported to offer advantages in the treatment of photodamaged skin.

Conventional contraindications, and pre- and post- treatment regimens are applied to IPL treatments, alone and in combination with other modalities. Any additional contraindications or special concerns for the other modalities can be found in the cited document.

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## Skin Types I - III

**For darker skin types: Increase delay to 30 ms.**

Application	Pass	Filter nm	Fluence J/cm <sup>2</sup>	T1 ms	T2 ms
Erythema / flushing	1	560	26	2.4	4.0
Persistent erythema*	1	560	22-28	3.0	3.0
Rosacea / telangiectasia	1	560	28	3.0	3.5
Hyperpigmentation	1	560	28	2.4	4.0
Melasma	1	560	28	4.0	4.0
Photoaging (mild)	1	560	26	2.4	4.0
Poikiloderma of civatte (photodamaged neck and chest)	1	560	26	2.4	4.0
Lentigines, photoaging of extensor forearms and dorsal hands	1	560	25	2.5	4.0
Lower lip venous angiomas, deep angiomas and angiokeratomas					
Vascular scars	1	560	28	2.4	3.5
Telangiectasia including leg veins less than 1 mm in diameter	1				
Telangiectasia including leg veins 1-2 mm in diameter	1				
Telangiectasia including leg veins 2-4 mm in diameter	1				

Note: Settings recommended by Mitchel Goldman, M.D.

\* Setting recommended by Tristan Guevara, D.O.

T3 ms	D1 ms	D2 ms	Nd:YAG					
			J/cm <sup>2</sup>	T1	T2	T3	D1	D2
	15							
4.0	20	30						
	15							
	15							
	35							
	15							
	15							
	15							
			110-125	4.5	4.5	4.5	20	20
	15							
			100-140	12-16 45° angle to skin				
			100-140	12-16 90° angle to skin				
			100-140	12-16 45° angle to skin				

## IPL/Nd:YAG

An article was published in the *Journal of Cosmetic & Laser Therapy*<sup>1</sup> regarding the combination of VascuLight® Nd:YAG treatment with IPL for better results of facial non-ablative photorejuvenation. **In general, settings for the IPL Quantum should be 10% lower than those used with the VascuLight IPL.**

The clinical tips emerging from this paper are as follows:

1. A regimen of three sessions, one month apart, was used with IPL followed by Nd:YAG.
2. IPL was used at 570 nm filter, single pulse of 7 ms and fluence of 30 J/cm<sup>2</sup> for skin types II-IV. It is possible to use the conventional IPL photorejuvenation parameters to match the various skin types.
3. Nd:YAG was used double pulse of 7 ms each, 20 ms delay and fluence of 120 J/cm<sup>2</sup> over the wrinkles only.
4. The comparative outcome of the combined treatment as compared to IPL alone was a better wrinkle score of the combination (80% satisfaction vs. 60%), which persisted longer.

## IPL-ALA Complementary Therapy

Several articles have been published in the *Journal of Drugs in Dermatology*<sup>2</sup> on the advantageous combination of ALA/PDT with IPL photorejuvenation, especially when underlying actinic keratosis (AK) is involved. **In general, settings for the IPL Quantum should be 10% lower than those used with the VascuLight IPL.**

1. Regimen of one session was used with topical 5-aminolevulinic acid (ALA) followed by IPL.
2. The ALA was incubated for one hour.
3. IPL (VascuLight) was used at 560 nm filter, double pulse of 3 and 6 ms, 10 ms delay, and fluence of 28-32 J/cm<sup>2</sup> for skin type I-III. If treating darker skin types, appropriate parameters should be used.
4. The results indicated a synergy: one session with ALA in combination with IPL was equivalent to the conventional 3-5 sessions of IPL photorejuvenation alone.
5. Improvement was seen in actinic keratosis (68% resolved), as well as photoaging: 55% for telangiectasia, 48% for pigmentation and 25% improvement in skin texture.
6. Mild pain and transient mild erythema and edema were the only "adverse" effects.
7. Pre-treatment with acetone scrub or mild microdermabrasion is believed to enhance the ALA and IPL penetration into the skin.
8. Due to ALA photosensitivity it is essential to completely avoid sun exposure for 24 hours post-treatment.

## **Botox/IPL**

A detailed description of the combined treatment of IPL skin treatments using photorejuvenation and Botox was presented as a supplement in *Cosmetic Dermatology*<sup>9</sup>.

1. The IPL treatment is performed first with the conventional Quantum™ SR parameters according to the skin type: 560-640 nm filters, 2.4 and 4/5/6 ms pulse duration and 10-15 ms delay, with fluence of 24-28 J/cm<sup>2</sup>. The patient's position was recumbent and changed to upright position for the Botox treatment.
2. Botox (botulinum toxin type A) was injected only after the first IPL treatment. Vials of 100-unit were diluted in 1 ml sterile, non-preservative saline, and 0.3-cc diabetic syringes with 30-gauge needles, used to inject the crow's feet. Each patient received 15 units Botox, divided into 3x5-unit fractions and injected subdermally into three periocular sites, 1 cm apart. The other side was treated similarly.
3. Forehead, glabellar and periorbital areas may be equally injected with total facial dose up to ~60 units.
4. Upright position should be maintained for four hours post-Botox treatment.
5. IPL treatment regimen included four more sessions at 3, 6, 9, and 12 weeks with no Botox injection, and follow-ups at 18, and 26 weeks post the combined treatment.
6. IPL alone achieved 100% improvement in vascular and pigmented lesions after two sessions, but reached only 93% textural improvement after three sessions.
7. IPL and Botox combination achieved 100% improvement in vascular lesions after one session, and in pigmented lesions and texture after two sessions. The most prominent advantage of the combined treatment was demonstrated in the textural improvement, as expected.
8. However, the overall facial skin improvement including vascular and pigmentary changes was about 15% better with the combined modalities and was sustained for six months post IPL/Botox.

## Footnotes

1 Trelles MA, Allones I, Velez M & Mordon S. Nd:YAG laser combined with IPL treatment improves clinical results in non-ablative photorejuvenation. *J. Cosmetic & Laser Therapy* 6: 1-10, 2004.

2 Goldman MP, Avram DK & Rao J. Effectiveness and safety of ALA-IPL in treating actinic keratosis and photodamage. *J. Drugs in Dermatology* 3:5-36, 2004.

3 Carruthers JA, Weiss R, Narurkar V & Flynn TC. Intense pulsed light and botulinum toxin type A for aging face. *Cosmetic Dermatology, supplement* 16(11):S5.

Other publications on PDT/IPL combination:

- Ruiz-Rodriguez R, Sanz-Sanchez T, Cordoba S. Photodynamic photorejuvenation. *Dermatologic Surgery* 29(8): 742-744, 2002
- Nestor MS, Goldberg DJ, Goldman MP, Weiss RA & Rigel DS. New perspectives on photorejuvenation. *Skin & Aging* May 2003: 68-74.
- Goldberg MP. The role of PDT in the treatment of actinic keratosis and photoaging. *Cosmetic Dermatology* 15(6): 59-65, 2002.

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Caution: U.S. law restricts this device to sale by or on the order of a physician or licensed practitioner.

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