THE LARGEST DIODE LASER FAMILY FOR HAIR REMOVAL





**Milesman** is a company doing business in more than 30 countries and who researches and manufactures advanced technology medical laser equipment.

It is divided into departments specializing in Laser Physics, Dermatology, Advanced Optics, Thermodynamics and Laser Chemistry among others. The production and R&D functions are performed at different locations in Europe and the United States.

The company makes use of its own technology developed in conjunction with prestigious universities and international research centers which provides a solid base and excess capacity for sustained growth in the coming years.





ABOUT **LASERS** and **HAIR** 

ABOUT TREATMENT

SPECIAL FEATURES THAT MAKES
MILESMAN COMPACT A UNIQUE
TECHNOLOGY

HAIR REMOVAL MARKET



# THE LARGEST DIODE LASER FAMILY FOR HAIR REMOVAL















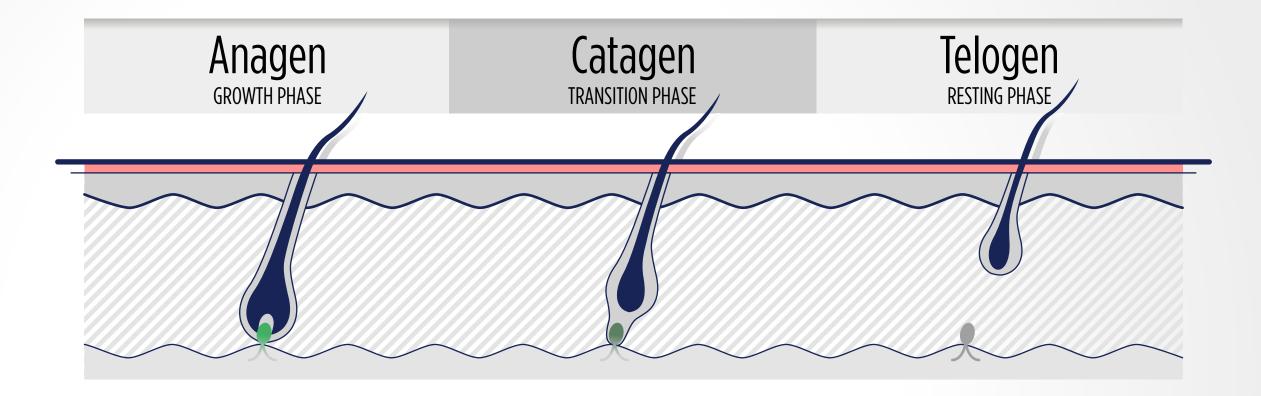
ABOUT LASERS and HAIR





# HAIR PHASES





It is the active growth phase of hair follicles during which the root of the hair is dividing rapidly, adding to the hair shaft. During this phase the hair grows about 1 cm every 28 days.

It is a short transition stage that occurs at the end of the anagen phase. It is the end of the active hair growth phase. This phase lasts for about 2 to 3 weeks. This process cuts the hair off from its blood supply and from the cells that produce new hair.

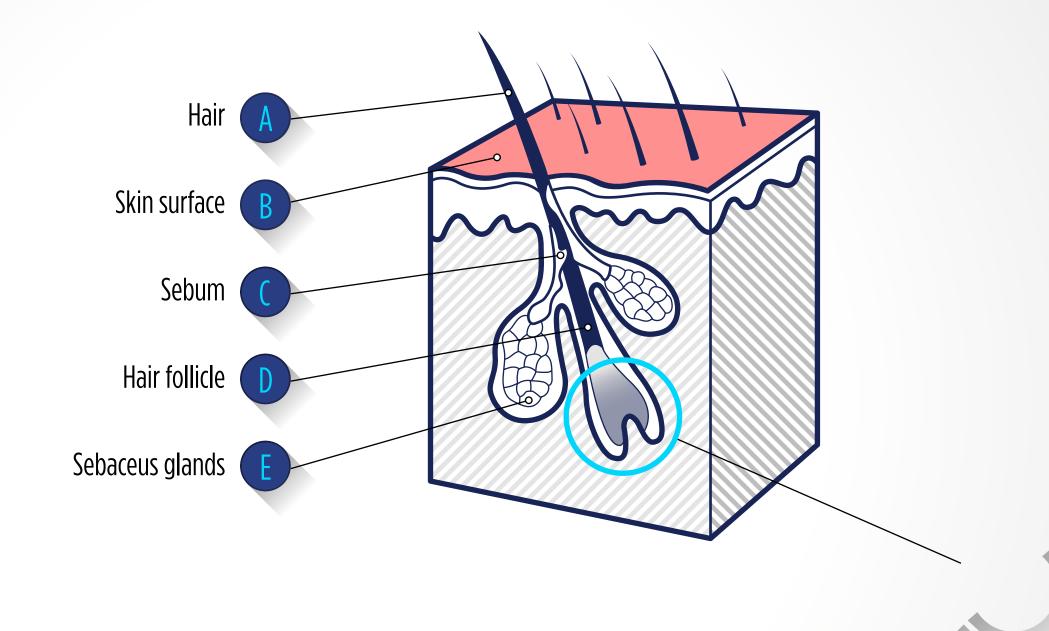
It is the resting phase of the hair follicle. In this phase there is no hair shaft or recognizable follicular structures.



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# HAIR REMOVAL LASER TARGETS



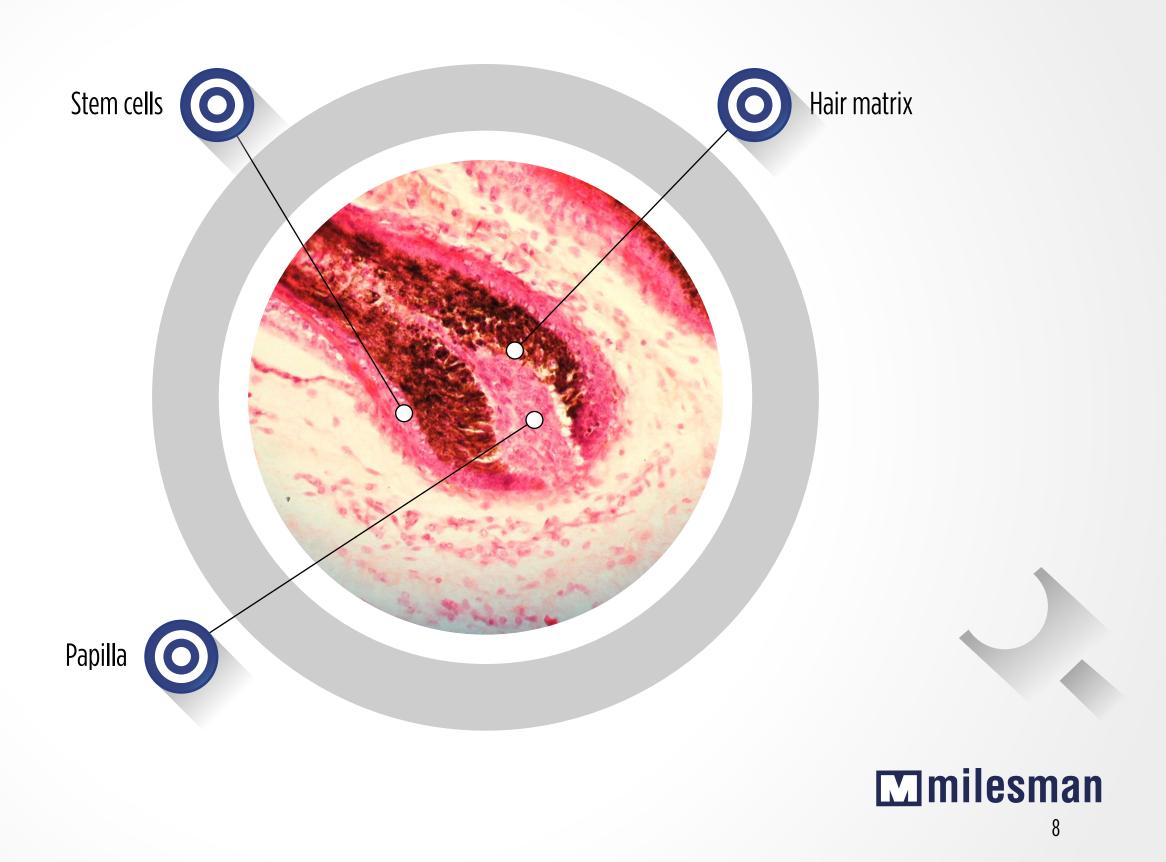






# HAIR REMOVAL LASER TARGETS







# MAIN **CONCEPTS**



### Main concepts

The targets of laser hair removal (matrix, papilla and stem cells) have to be denaturalized and coagulated to avoid the hair growing.

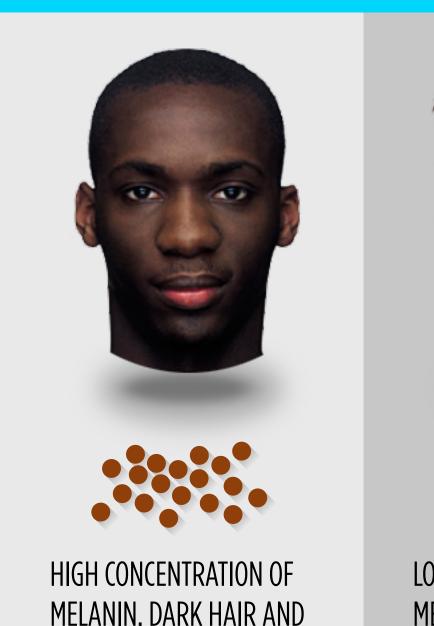
The way to best do this is by applying heat to the hair shaft so that it transmits the NECESSARY heat to damage and coagulate stem cells, matrixes and papillas.



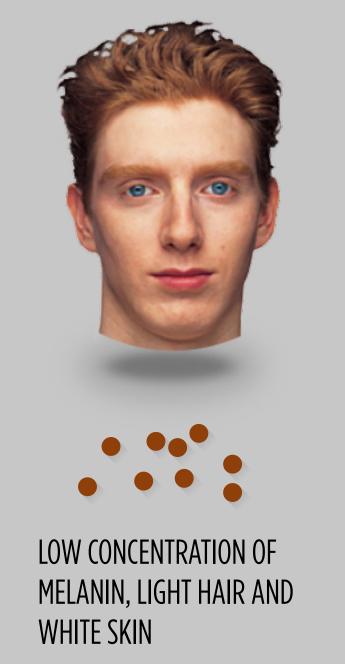
# **MELANIN**

Pigment is responsible for the color of skin, eyes and HAIR

### Melanin



MELANIN, DARK HAIR AND **BLACK SKIN** 







# HEATING A HAIR FOLLICLE

### **Heating** a hair follicle

### Wavelength

The laser light must have the proper wavelength which provides adequate absorption by the melanin but little by other pigments. (THEORY OF SELECTIVE PHOTOTERMOLYSIS)

### Pulse duration

The laser light has to be delivered over a short time such that the melanin does not get overheated causing damage to the skin. Therefore it is said that the pulse duration must be shorter than the thermal relaxation time of the tissue in the treatment area.

# Energy density

The laser light has to be delivered with a precise energy so that the melanin does not overheat and generate thermal damage to the skin.





# MAIN **CONCEPTS**

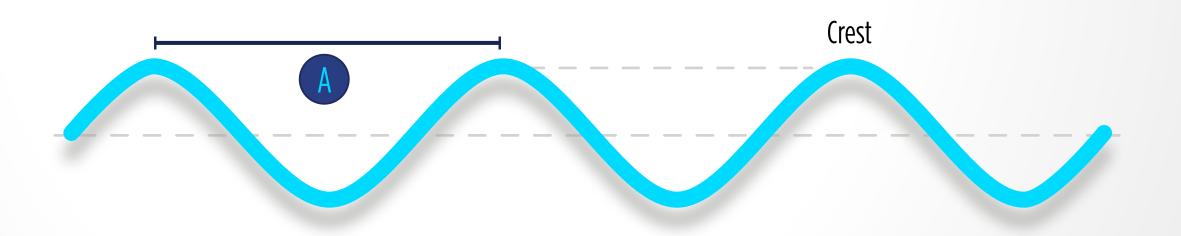
# WAVELENGTH



### Definition:

Shortest distance at which the entire wave pattern is repeated, usually measured from crest to crest. The **wavelength** in the visible spectrum determines its color of the output laser.







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# MAIN **CONCEPTS**

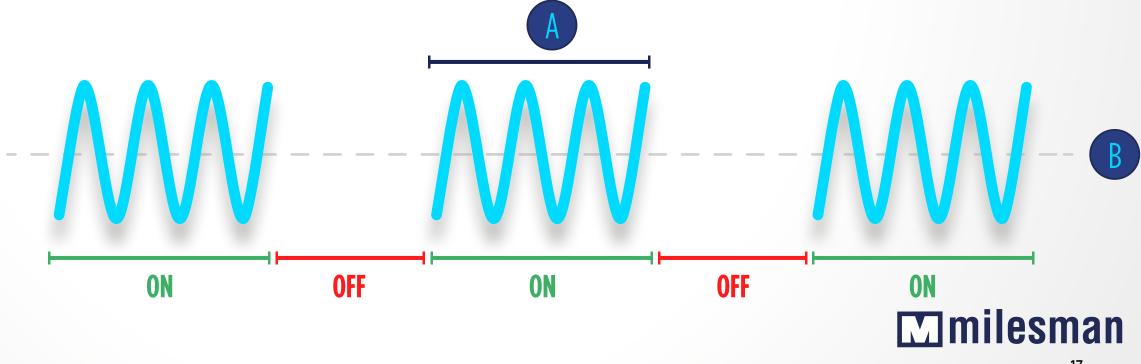


- A Pulse length
- B Time

### Definition:

Pulsed lasers, as opposed to continous lasers, emit laser energy in short, repetitive bursts. The duration of that pulse is called **PULSE LENGTH**.







# MAIN **CONCEPTS**



### Definition:

It is the amount of average light measured in Joules, delivered per square centimeter of skin per second. The more light per cm<sup>2</sup> we apply the more heat we will generate.

 $cm^2$ 

**FLUENCE** 





# SUMMARY OF THE FORMULA FOR A LASER TO WORK FOR HAIR REMOVAL AND BE EFFECTIVE...

### **Heating**

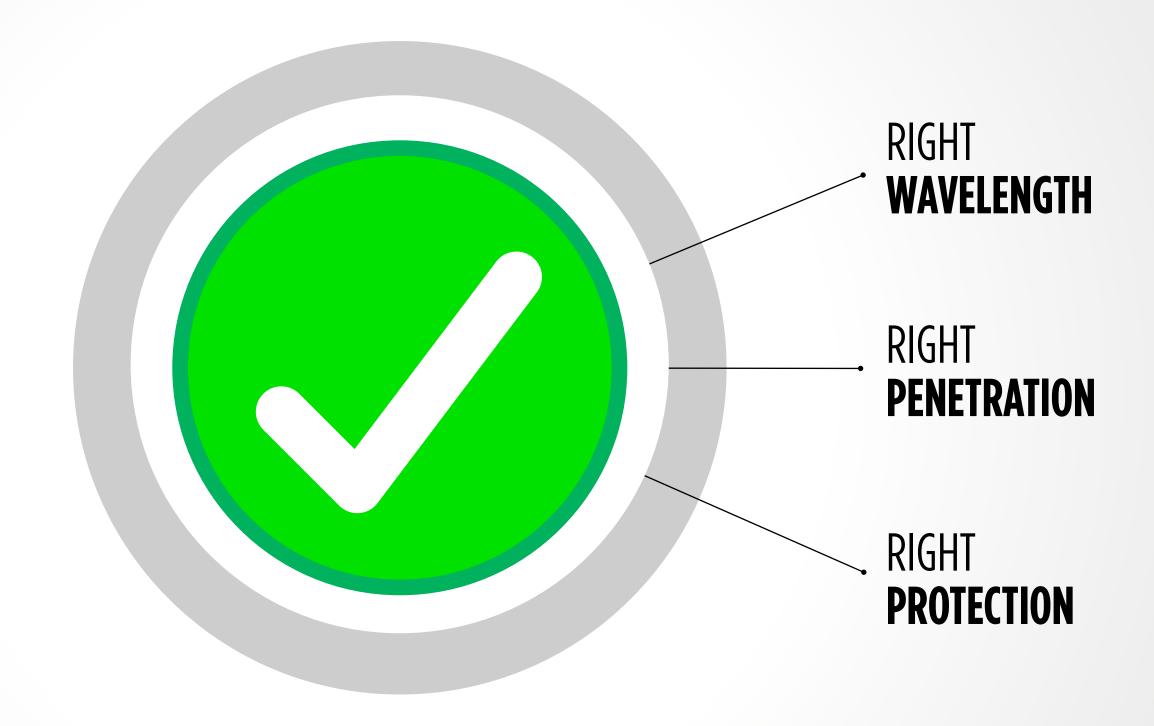
Heating the hair enough to heat, damage and coagulate the stem cells and the papila, responsible for hair growth.

#### Melanin

The way to heat hair is by the emission of a laser that is absorbed by a component of the hair called melanin, which has the feature that turns it into heat.

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WHAT IS THE "RIGHT" LASER?



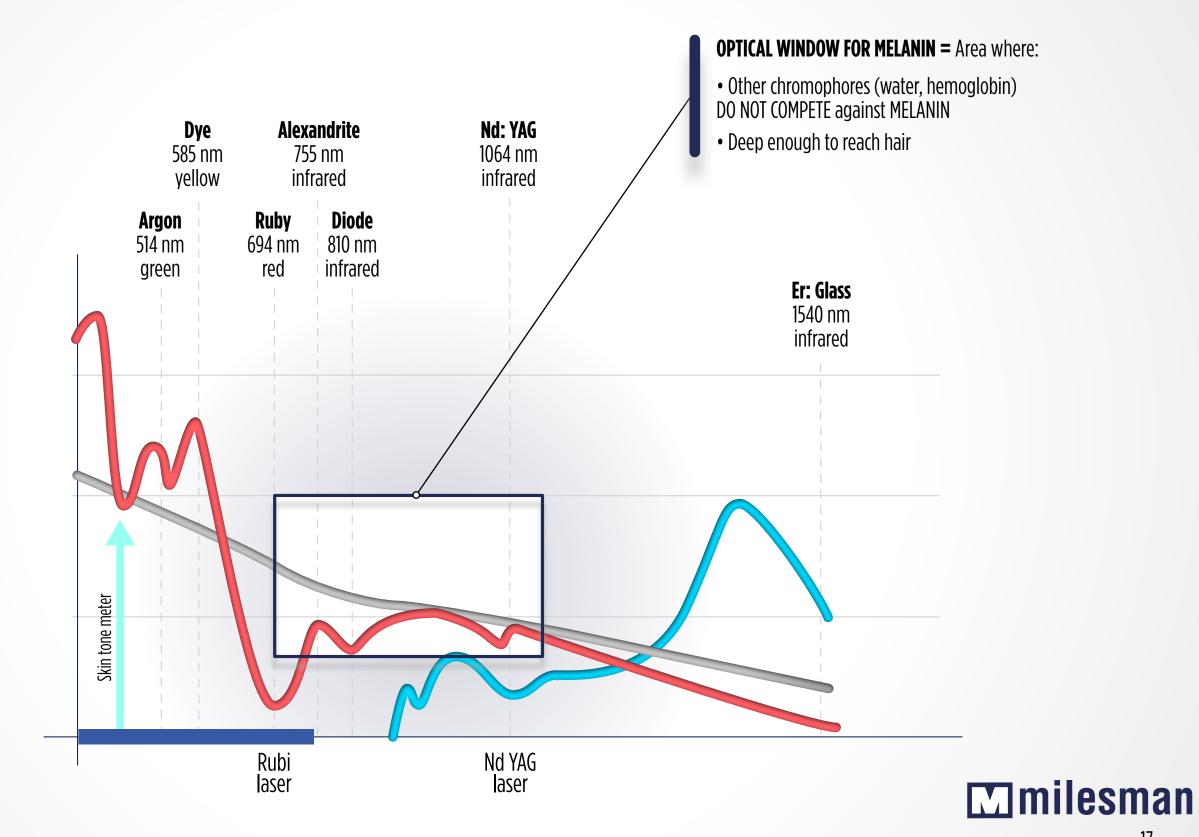




# **RIGHT** WAVELENGTH

It is possible to get results from **650 nm** to **1100 nm** 





#### Depth of penetration by various lasers



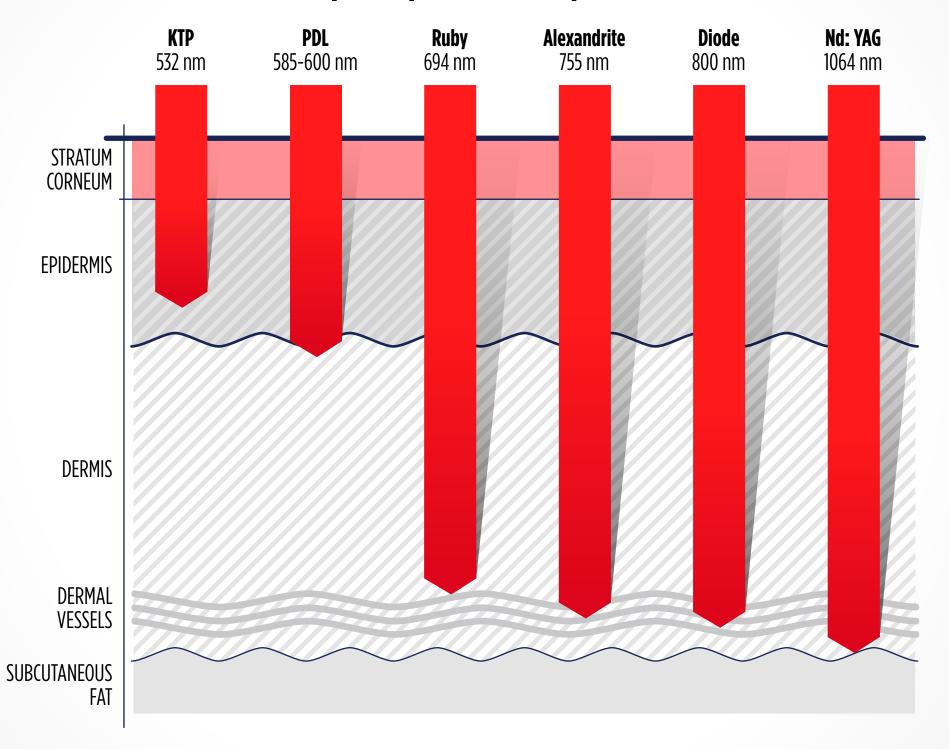


# RIGHT **PENETRATION**

# REACHING THE STEM CELLS

Large terminal follicles are rooted deep in the subcutaneous fat. Papillas and stem cells are at the bottom of the hair follicles. A laser will be effective if it 's able to reach the entire depth of the follicle.

Only lasers from 650 nm up to 1,100 nm penetrate enough to reach the hair root and the targets.

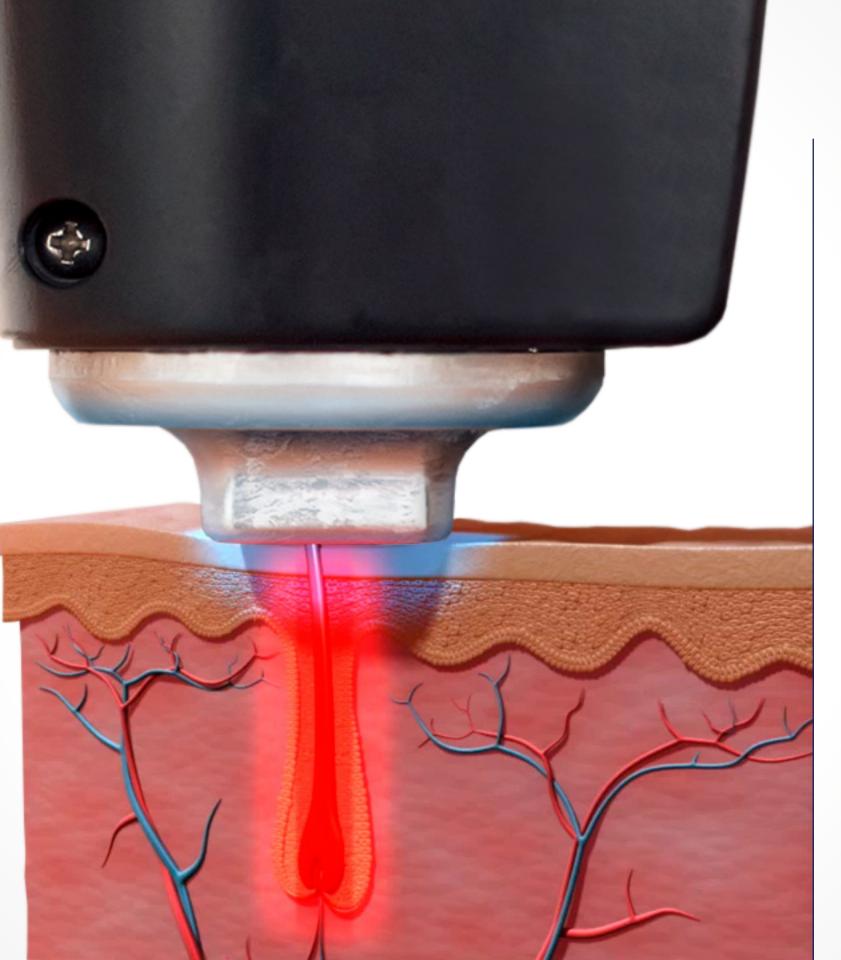






# RIGHT **PROTECTION**

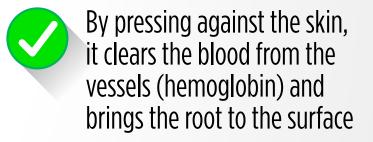
**Cooling** with a **Sapphire** 















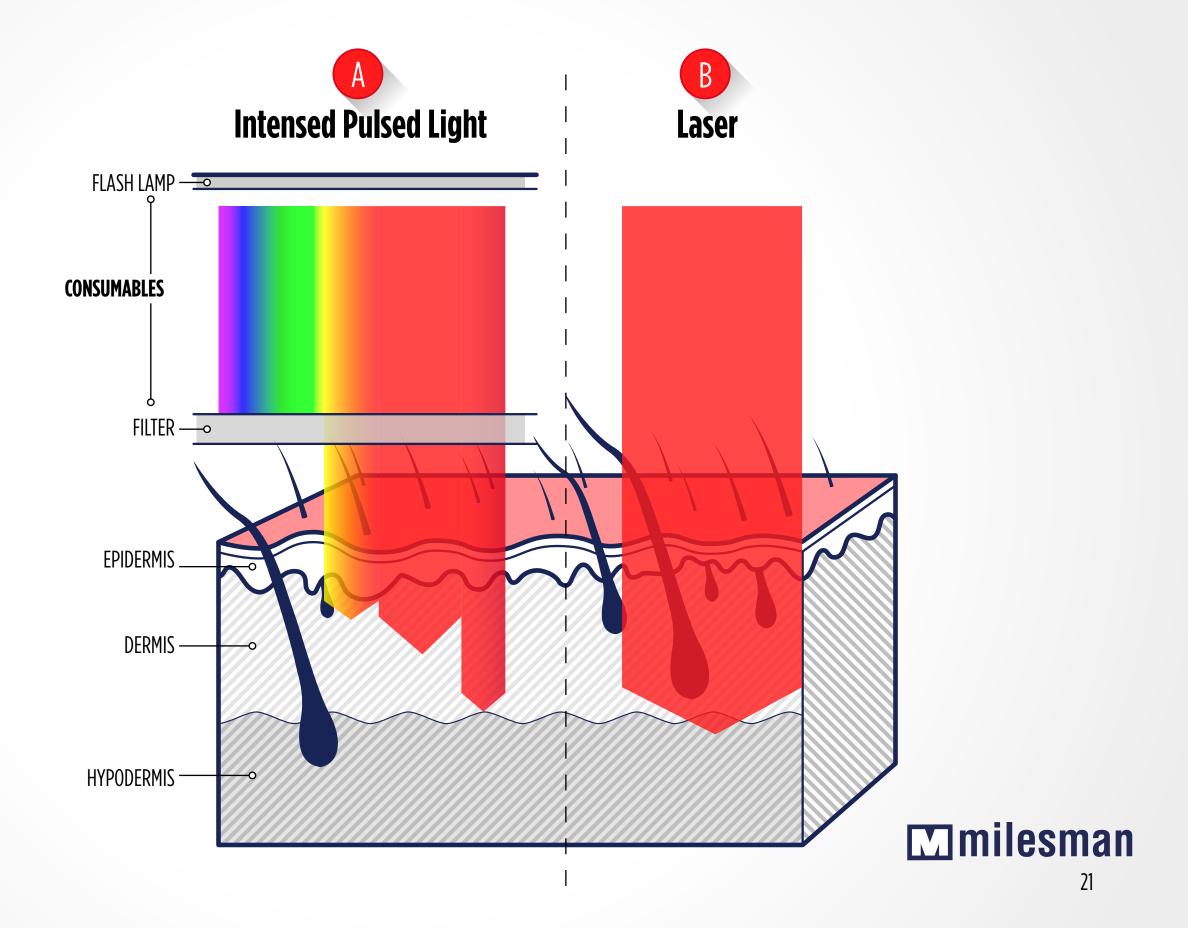


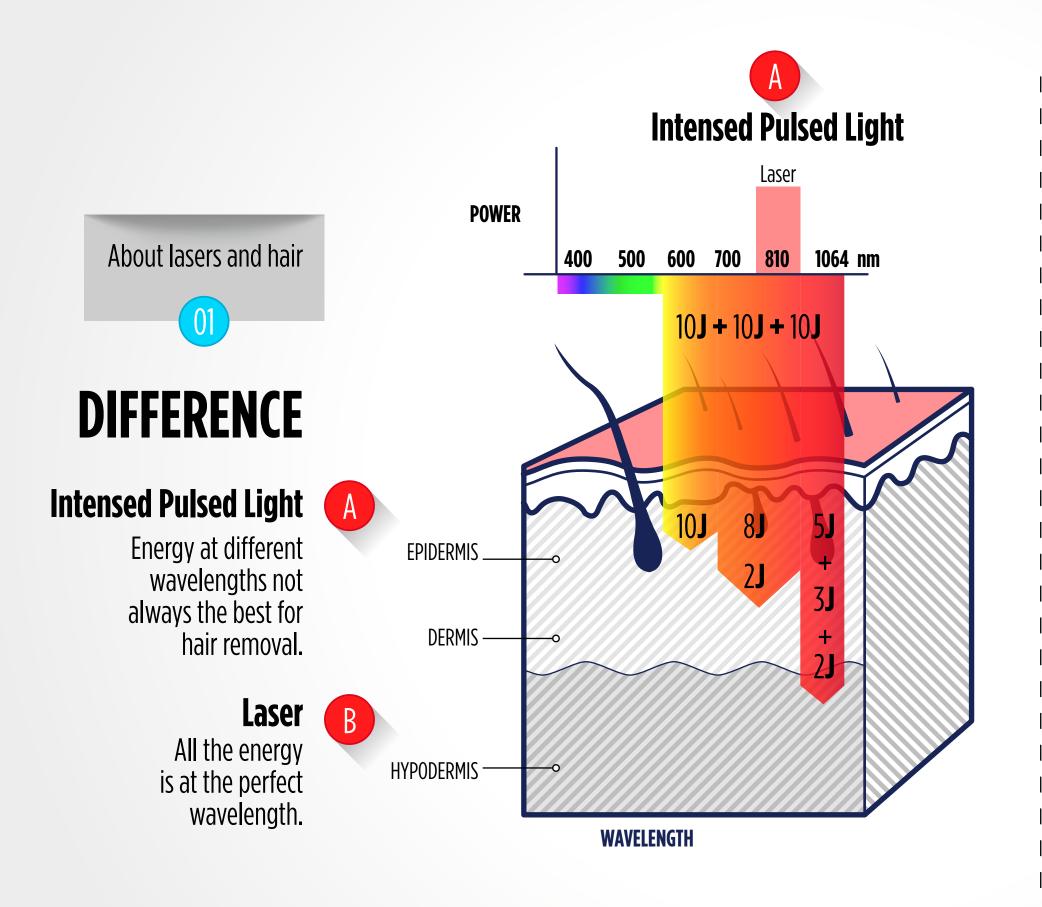
# **DIFFERENCE**

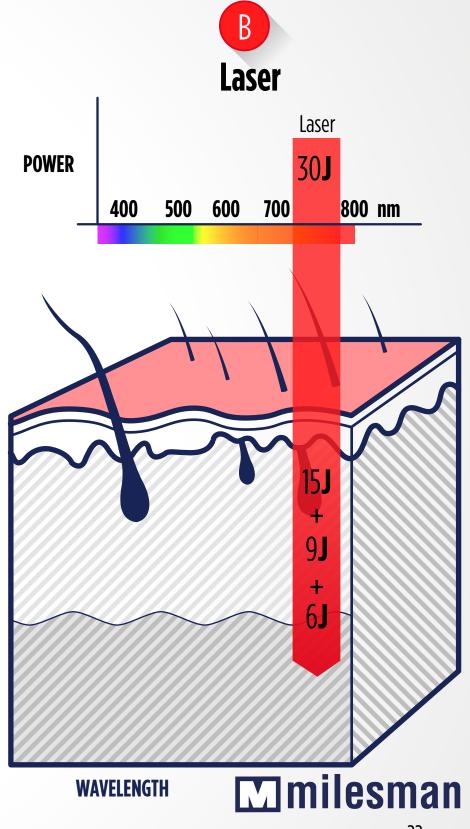
#### **Intensed Pulsed Light**

Using white light and a filter it is posible to get different color output lights. It's not possible to get only one light.

**Laser**One single wavelength.















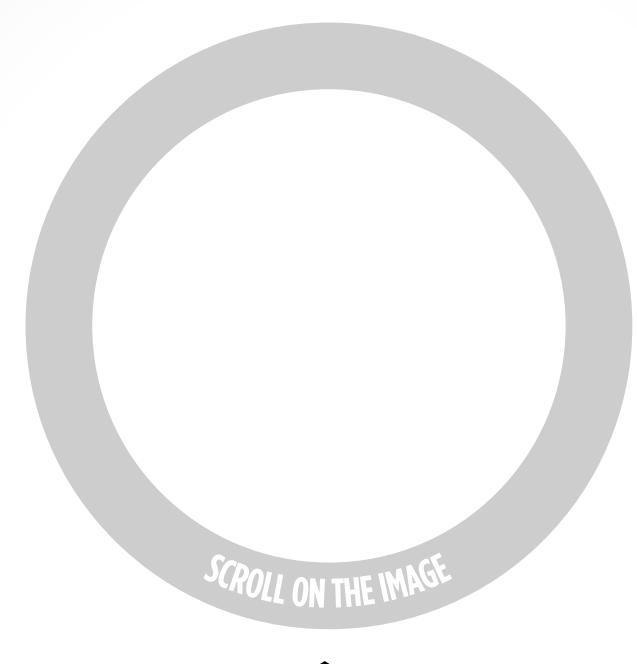
# TYPE OF LASERS WITHIN THE OPTICAL WINDOW AND WITH THE RIGHT PENETRATION

- **685 nm:** RUBY. Discontinued, a lot of technical problems.
- **755 nm:** ALEXANDRITES and 755 Diodes.
- **810 nm:** DIODE.
- **1,064 nm:** Nd YAG and 1,064 diodes.



# TARGET:

POWER +
TIME TO HEAT
BUT NOT TO
BURN. JUST
COAGULATE
MATRIX AND
PAPILLA



# WHAT COMBINATION? DEPENDS on WAVELENGTH: (as a general rule)

- 685 nm, 755 nm and 810 nm: Short pulses
- 1,064 nm: Long Pulses

POWER + TIME



About lasers and hair



# 



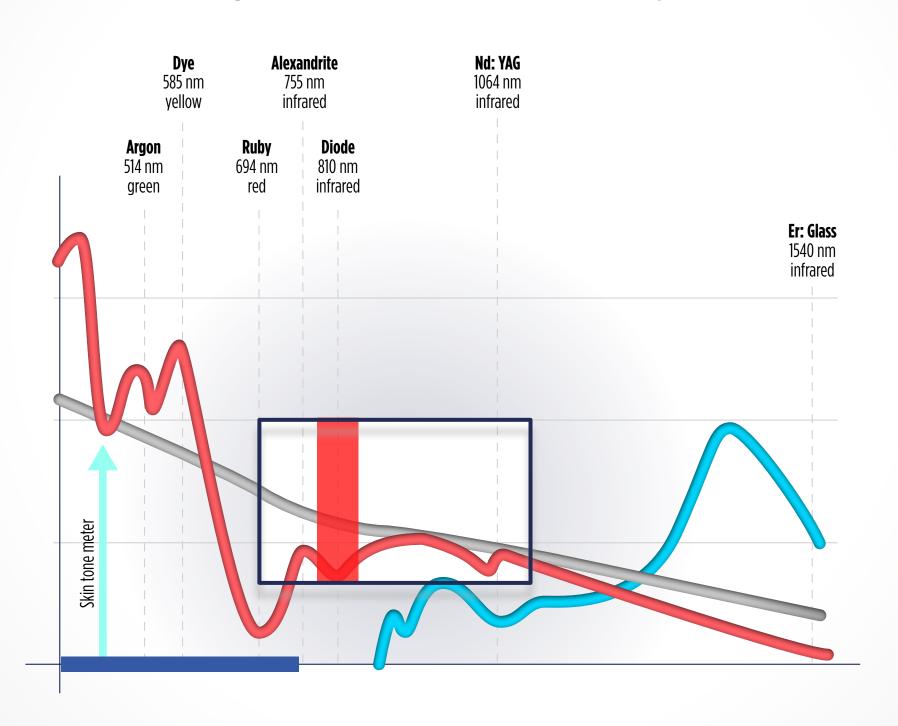
It's widely considered as the "**perfect**" and multiversatile wavelength as its wavelength is in the middle of the optical window.



01

# ADVANTAGE: FULL COVERAGE ACHIEVING OPTIMUM RESULTS

Melanin Oxyhemoglobin Water



Million of sucessful cases performed all over the world.

Permanently and safety removes any type of hair at any skin phototype (specially II to IV).

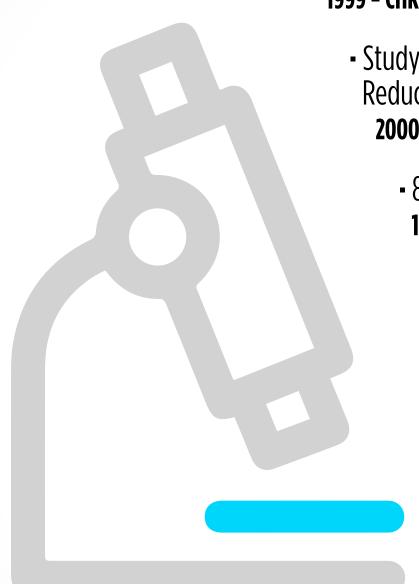
810nm: Recommended to treat all skin types, especially patients with high hair density and for initial hair removal sessions in most clientel.



About lasers and hair

01

# SCIENTIFIC COMUNITY RESEARCH DONE WITH 810 nm LASER LIGHT



Laser Hair Removal: Scientific Principles and Practical Aspects,
 1999 - CHRISTINE DIERICKX

 Study of Very Long-Pulsed (100 ms) High-Powered Diode Laser for Hair Reduction on All Skin Types,

#### **2000 - ELIOT BATTLE AND ROX ANDERSON**

- 800 nm pulsed, high-power diode laser hair removal system,
   1999 ROBERT ADRIAN
  - Diode laser-assisted hair removal in Asians: A study of 101 Japanese patients.

#### 2000 - TARO KONO AND MOTOHIRO NOZAKI

- Laser Hair Removal with an 800 nm Diode Laser A Retrospective Study of 1,000 Women with Skin Types II to VI,
   2002 - ATIF KAZMI
  - Laser Hair Removal,1999 ROX ANDERSON

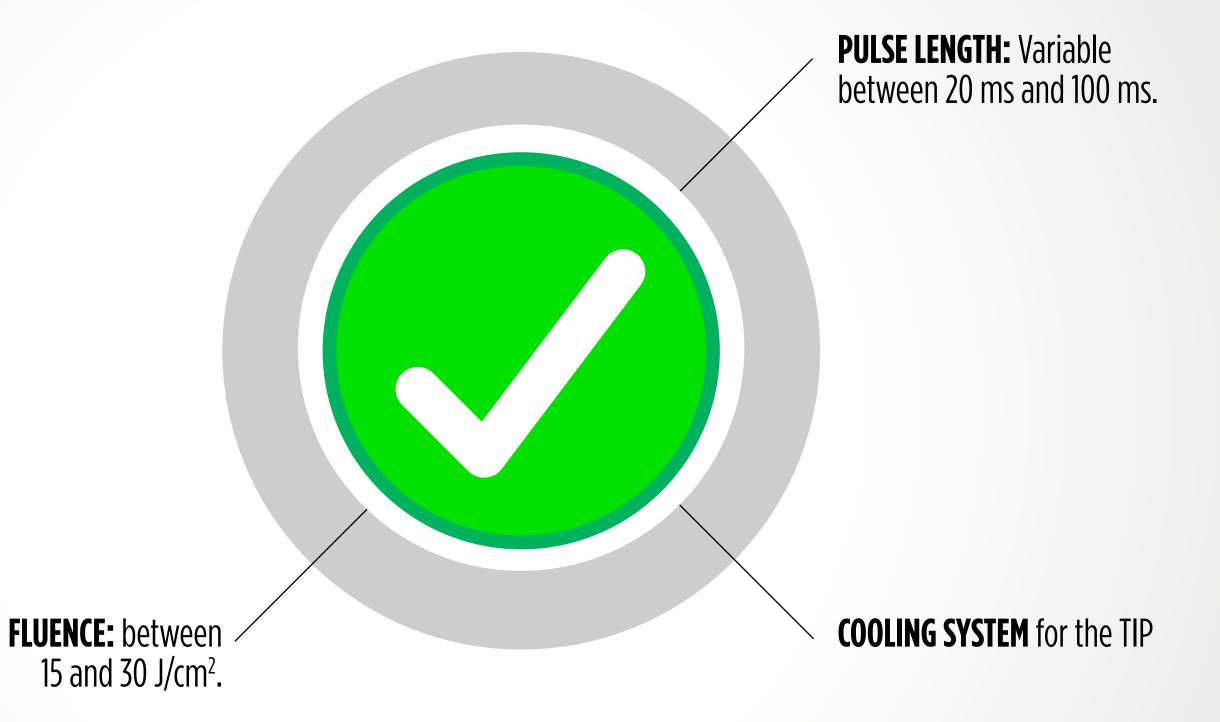


About lasers and hair

01

TO BE EFFECTIVE A

810 nm
NEEDS TO
HAVE:





About lasers and hair



# MILESMAN OFFER





alex

About lasers and hair





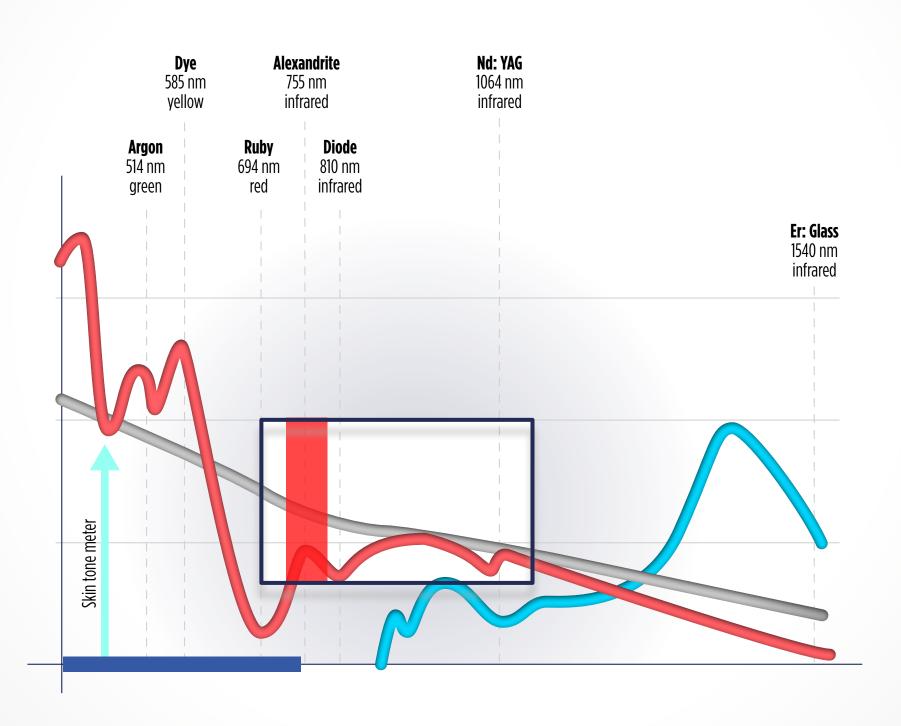


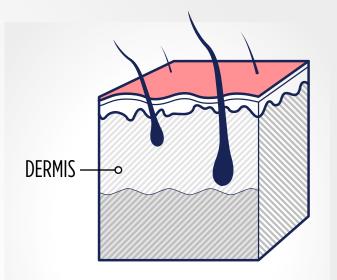
# It is recommended to treat lighter skin and regular hair and especially fine hair or vellus.



# ADVANTAGE: CLEAR SKINS AND THIN HAIR (VELLUS)

Melanin Oxyhemoglobin Water





This wavelength is very well absorbed by the melanin which is required when there is little vellus and penetrates less than other Lasers to the Depth where the vellus is located.

Vellus and fine hair are short, thin and possess slight coloration.

Vellus follicles are situated high in the dermis while large terminal follicles are rooted deep in the subcutaneous fat





# SCIENTIFIC COMUNITY RESEARCH DONE WITH 755 nm

- Laser hair removal: long-term results with a 755 nm alexandrite laser. **EREMIA S, LI CY, UMAR SH, NEWMAN N. DERMATOL SURG.** 

- Clinical assessment of a new 755 nm diode laser for hair removal: Efficacy, safety and practicality in 56 patients.

MARIO A. TRELLES MD, PHD.

- Retrospective evaluation of the safety and efficacy of laser hair reduction with the 755nm alexandrite wavelength with 8 year follow up,

**ELISABETH RUSSE EVA CISCAR MANFRED HEROLD.** 

- Comparison of efficacy and safety of a novel 755-nm diode laser with conventional 755-nm alexandrite laser in reduction of axillary hairs.

  AYATOLLAHI, SAMADI.
  - Removal of unwanted hair: efficacy, tolerability, and safety of long-pulsed 755-nm alexandrite laser equipped with a sapphire handpiece.

**NISTICO, DEL DUCA E.** 

 Novel 755-nm diode laser vs. conventional 755-nm scanned alexandrite laser: Side-by-side comparison pilot study for thorax and axillary hair removal.

PAASCH U, WAGNER JA, PAASCH HW.

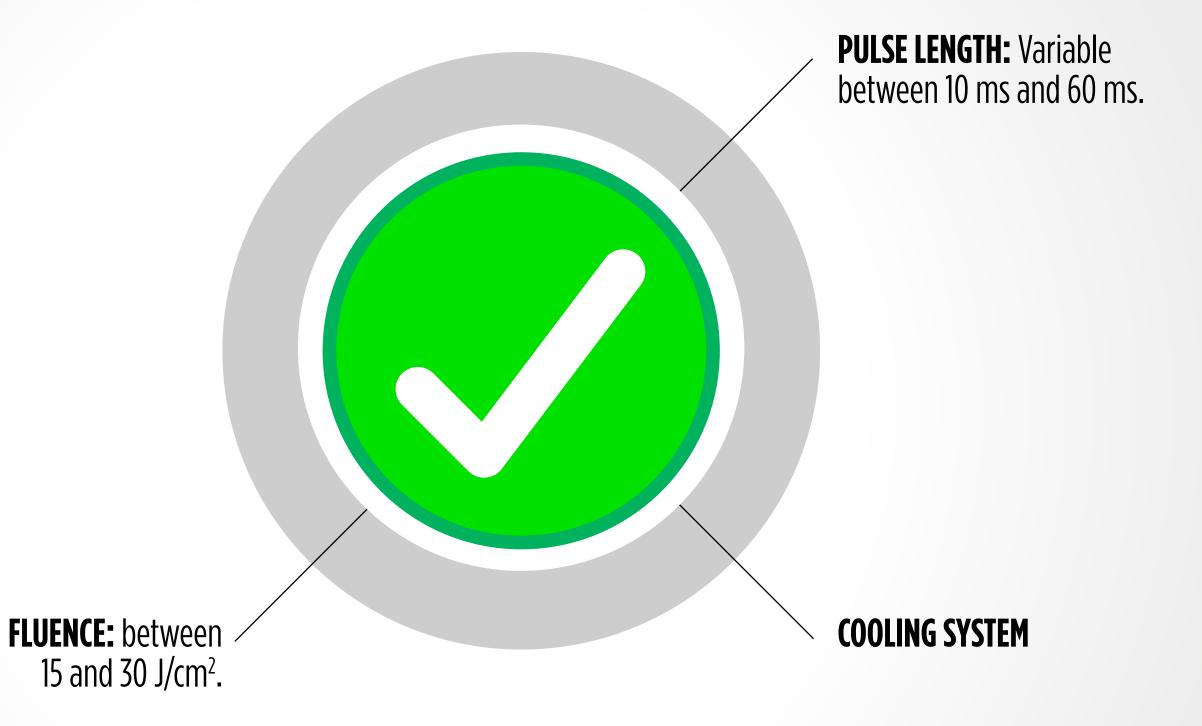






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TO BE EFFECTIVE A 755 nm NEEDS TO HAVE:





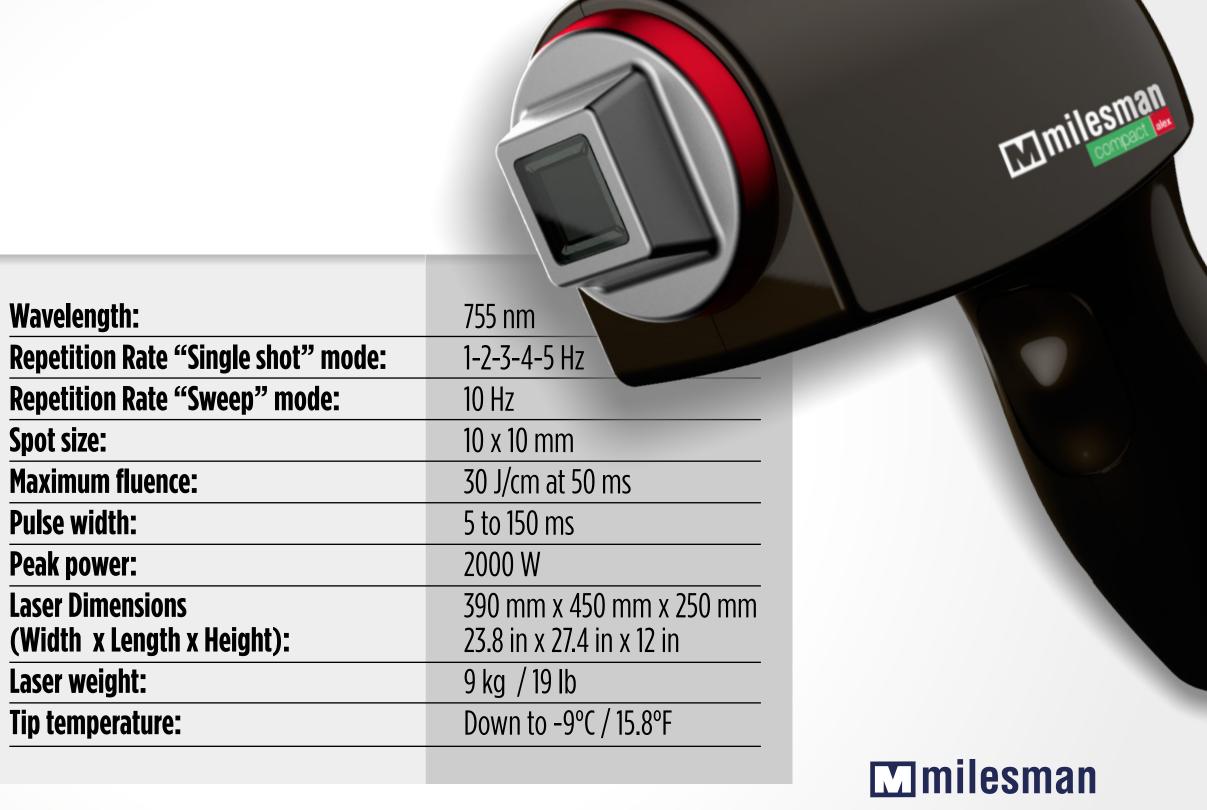


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About lasers and hair



# MILESMAN OFFER



Compact yag

About lasers and hair

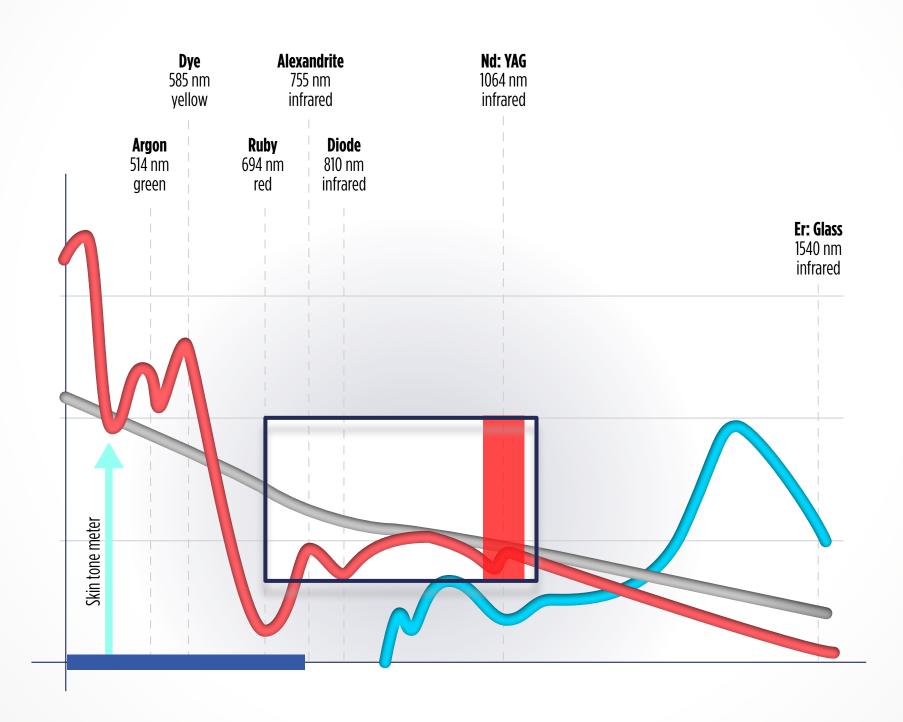
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#### MAIN ADVANTAGE: TANNED AND DARK SKIN (PHOTOTYPES IV-VI)

Melanin Oxyhemoglobin Water

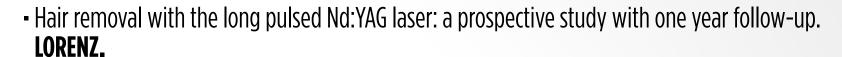


1064 is less absorbed by melanin but it penetrates deeper. This feature together with LONG PULSES makes it less effective due to the fact that the temperature of the hair rises slower, but in exchange it allows the skin to be better cooled. 1064 nm goes very well with skin that has more risk of being damaged by the excess of melanin (tanned and black skin).





# SCIENTIFIC COMUNITY STUDES OF THE 1064nm WAVELENGTH



Effectiveness of short-pulse widthx Nd:YAG in laser hair reduction.
 JANE SD, MYSORE V.

 Patient Reported Improvement in Quality of Life Associated With Successful Laser Hair Reduction at Hemodialysis Site With 1064-nm Nd:YAG Laser.
 THOMAS LW.

• Trichoscopic changes in hair during treatment of hirsutism with 1064-nm neodymium:yttrium-aluminum-garnet laser.

#### MOHAMED EE, AHMED AM.

• Evaluation of Long-pulsed 1064 nm Nd:YAG Laser-assisted Hair Removal vs Multiple Treatment Sessions and Different Hair Types in Indian Patients.

#### MITTAL R, SRIRAM S, SANDHU K.

- Nd:YAG laser hair removal in Fitzpatrick skin types IV to VI.
   CHAN CS, DOVER JS.
  - Long term epilation with long pulsed neodimium: YAG Laser. Dermatol Surg. 1999; 25:175–8.

#### BENCINI PL, LUCI A, GALIMBERTI M, FERRANTI G.

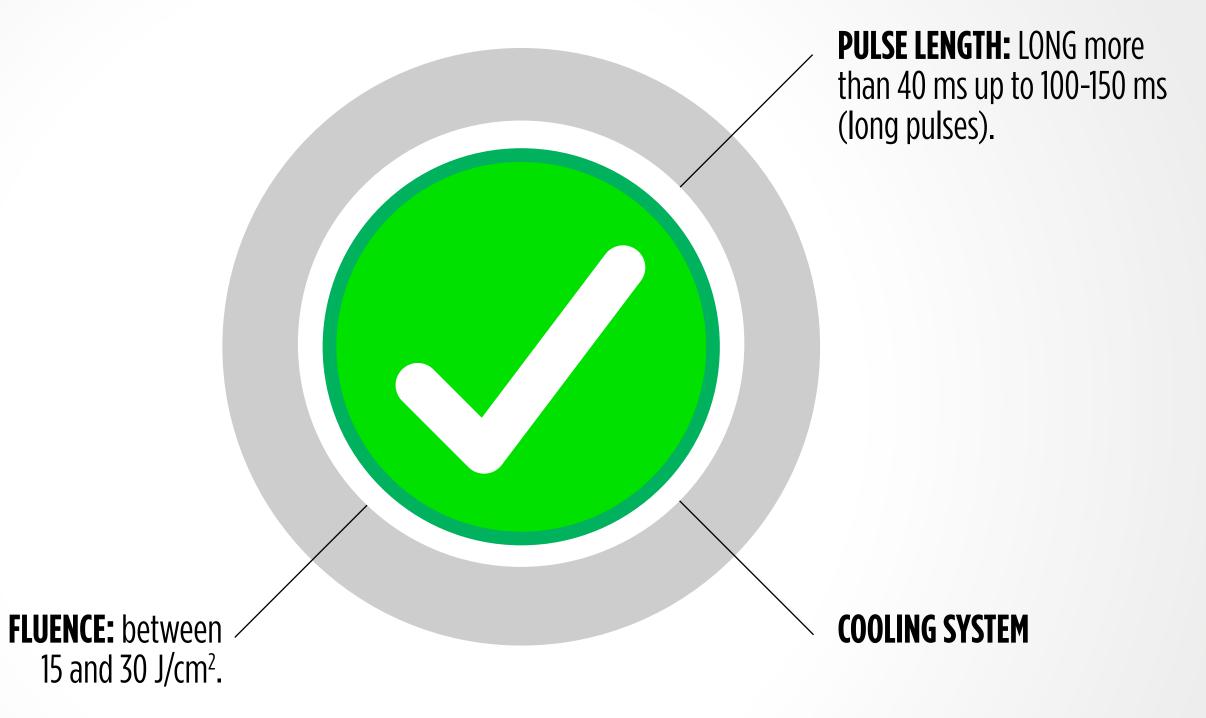
Hair removal with the long pulsed Nd: YAG laser: A prospective study with one year follow-up. Lasers Surg Med. 2002;30:127–34
 LORENZ S, BRUNNBERG S, LANDTHALER M, HOHENLEUTNER U.



compact yag

About lasers and hair

TO BE EFFECTIVE A 1064 nm NEEDS TO HAVE:







About lasers and hair



#### **MILESMAN OFFER**



#### compact blend

About lasers and hair



# 

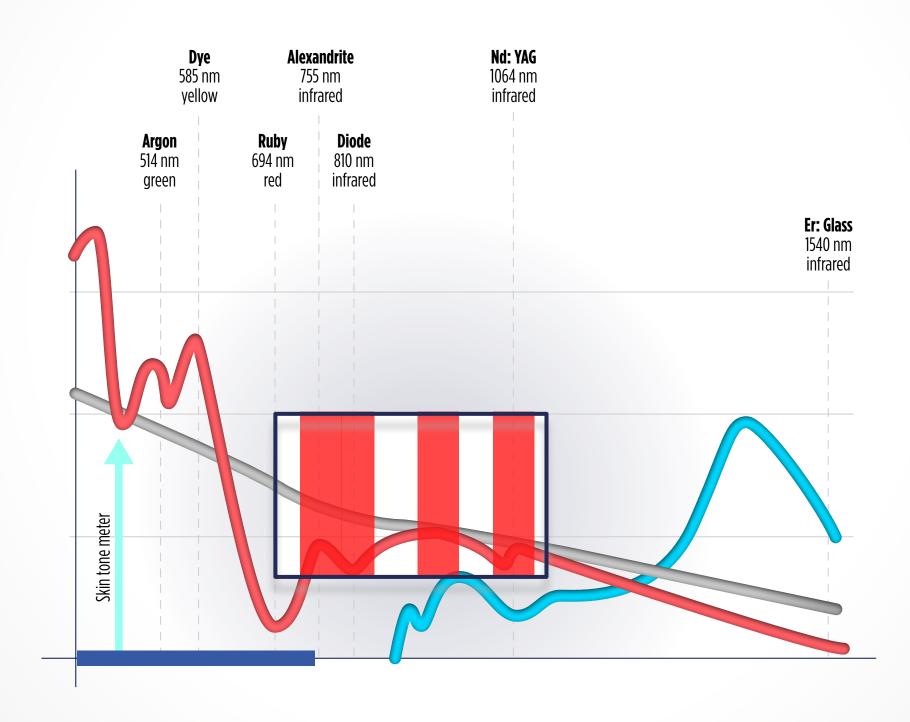


Combined wavelength: Perfect balance to treat dark phototypes (III-VI). Efficacy of 810nm and safeness of 1064 nm. Ideal to reach hair at any depth and dark skin.

About lasers and hair

# ADVANTAGE: LATEST TECHNOLOGY IS THE COMPLETE COMBINATION







#### compact blend

About lasers and hair



#### MILESMAN OFFER

Wavelength:	755, 810, 940 and 1064 nm
Repetition Rate "Single shot" mode:	1-2-3-4-5-6-7-8 Hz
Repetition Rate "Sweep" mode:	10 Hz
Spot size:	10 x 10 mm
Maximum fluence:	30 J/cm at 30 ms
Pulse width:	5 to 150 ms
Peak power:	2000 W
<b>Laser Dimensions</b>	390 mm x 450 mm x 250 mm
(Width x Length x Height):	23.8 in x 27.4 in x 12 in
Laser weight:	9 kg / 19 lb
Tip temperature:	Down to -9°C / 15.8°F

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About lasers and hair

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WHAT TYPE OF LASER SHOULD I CHOOSE?











Depends on your patients features and on your preferences (better results with more risks or poorer results with less risks)



#### **Skin complexion:** dermatologist assessment

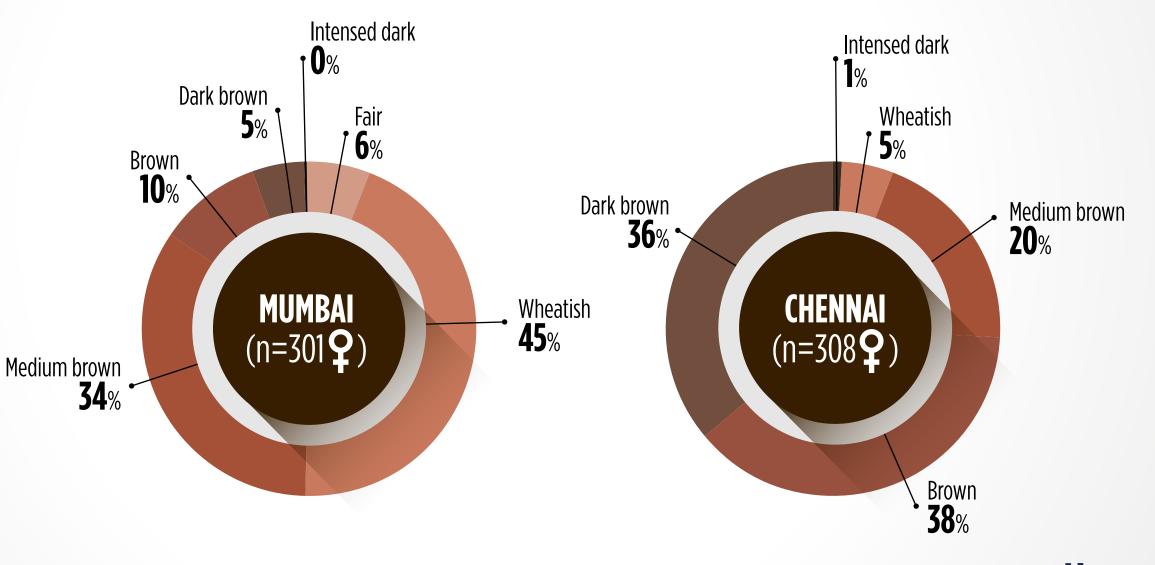


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# PARTICULAR CASE IN INDIA

Mumbai Chennai Delh Kolkata



Distribution of skin complexions based on dermatologist assessment in **Mumbai, Chennai, Delhi, and Kolkata (N = 1,204)** 



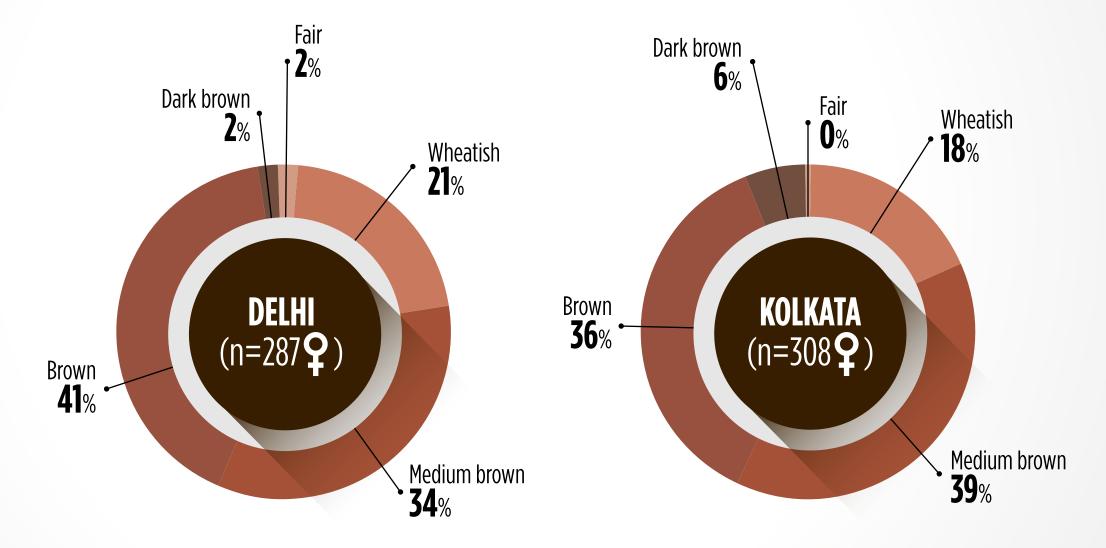
**Skin complexion:** dermatologist assessment



About lasers and hair

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# PARTICULAR CASE IN INDIA



Distribution of skin complexions based on dermatologist assessment in **Mumbai, Chennai, Delhi, and Kolkata (N = 1,204)** 

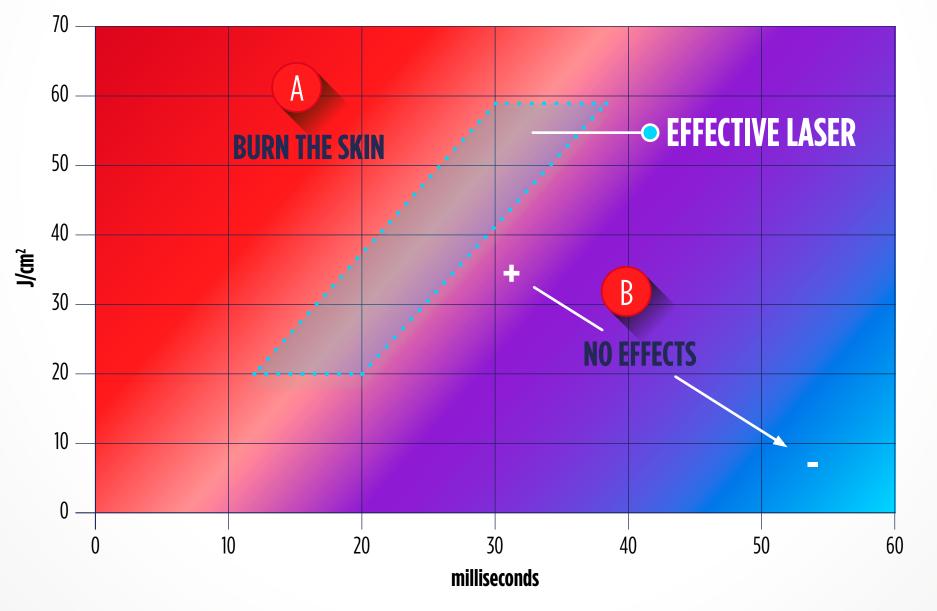


#### Power is essential in laser hair removal effectivity.

Clinical studies prove that a certain energy is necessary applied over a certain period of time to permanently remove hair.

About lasers and hair

THE IMPORTANCE OF **POWER** IN **LASER HAIR** REMOVAL



#### Therefore:

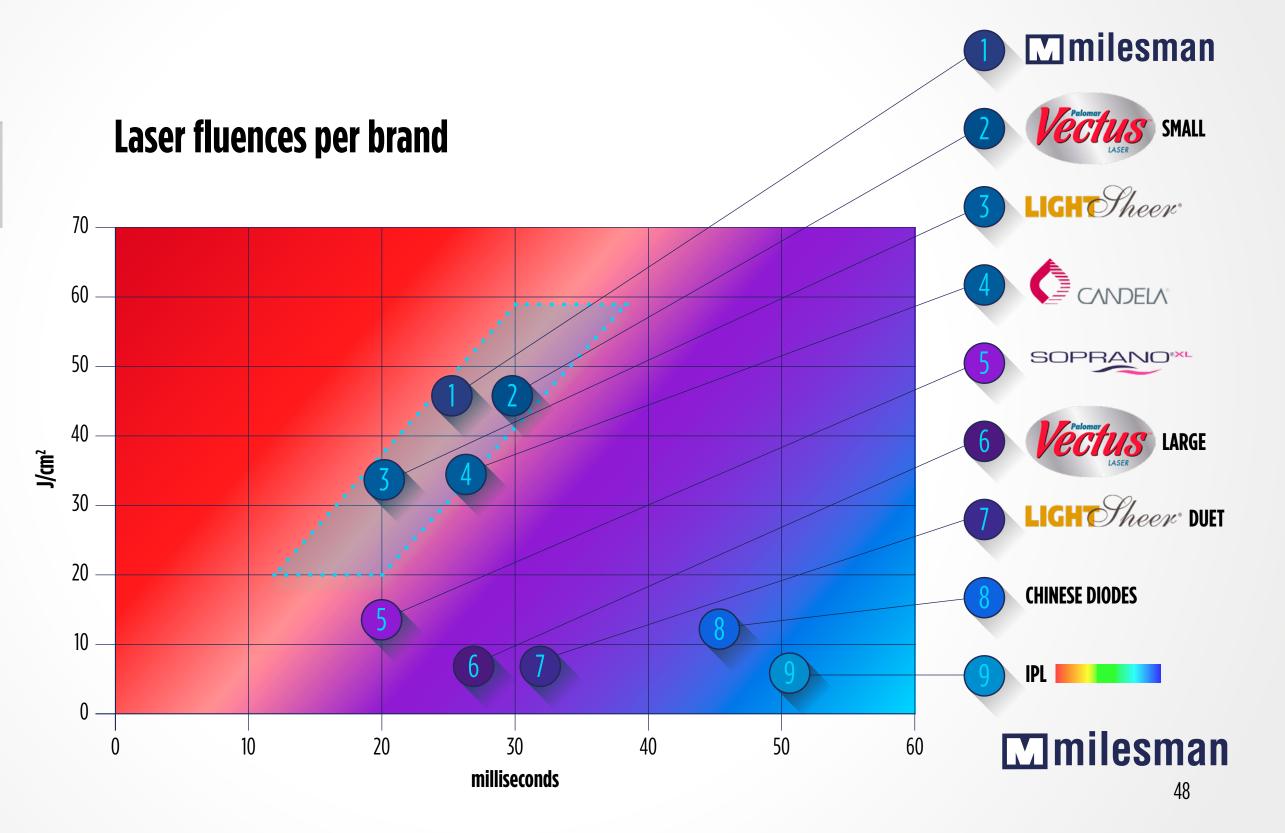
- A LOT OF POWER

  Dangerous! Risk of burning the skin
- A LITTLE POWER
  Not effective



About lasers and hair

## LASERS ON THE MARKET

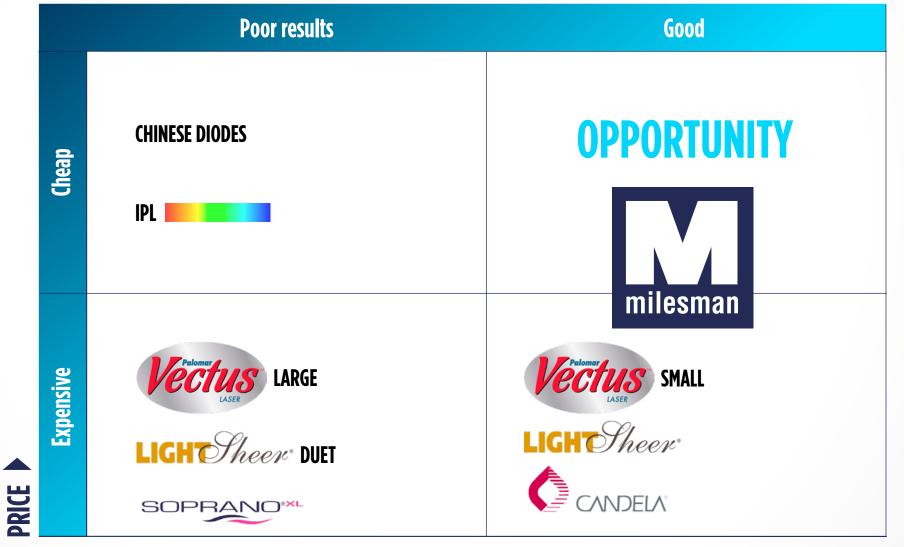


# About lasers and hair

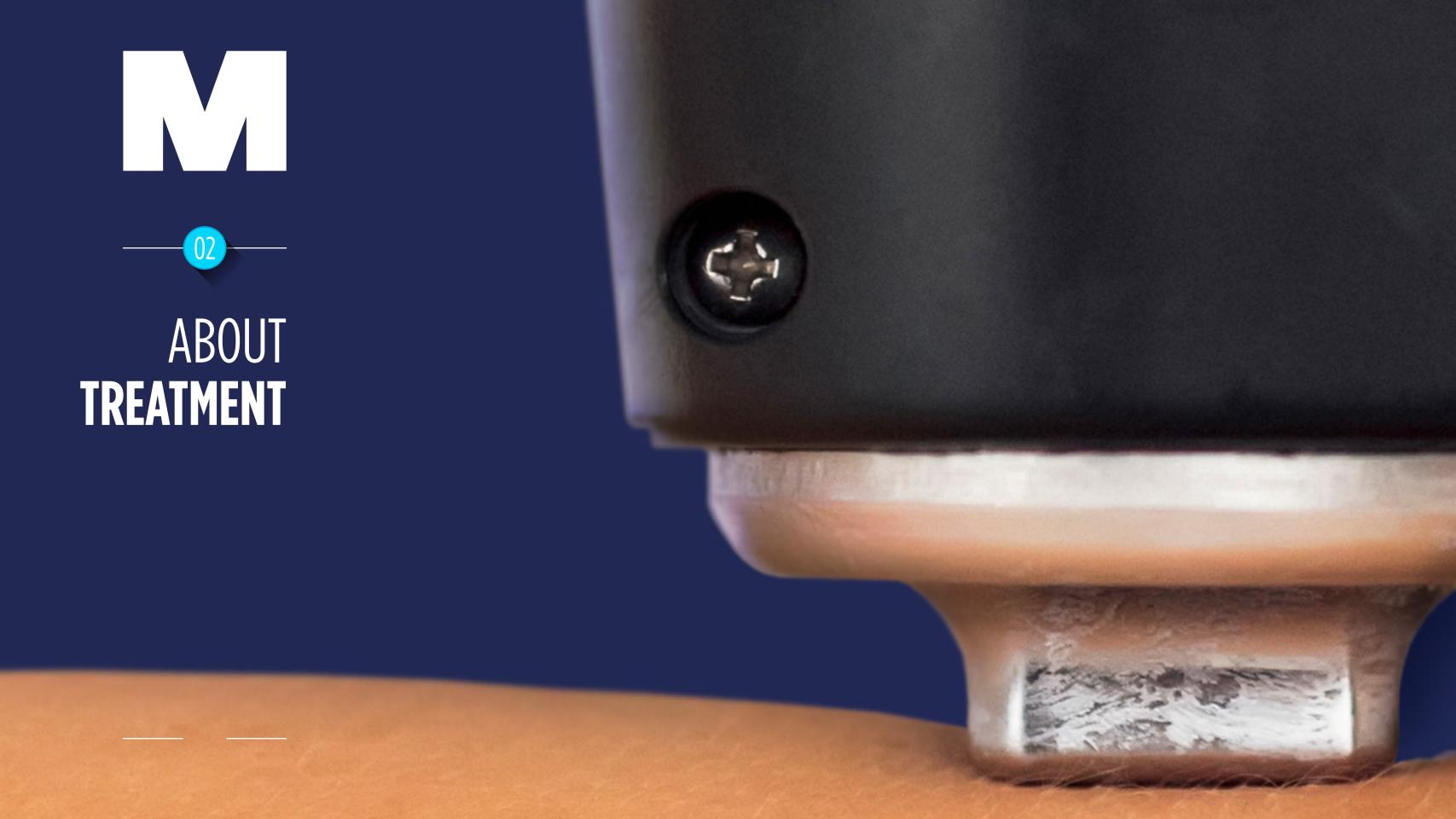
# LASERS ON THE MARKET

## **PRICE vs RESULTS**BY BRANDS

#### **RESULTS**







02

Body Site	Depth of Follicle	Follicle Density
Scalp	5-7 mm	350/sq.cm
Beard	2-4 mm	500/sq.cm
Upper Lip	1-2.5 mm	500/sq.cm
Axilla (armpit)	4-5 mm	65/sq.cm
Chest/Back	2-5 mm	70/sq.cm
Breasts	2-4 mm	70/sq.cm
Arm	2-4 mm	80/sq.cm
Legs	2-4.5 mm	60/sq.cm
Bikini/Pubic	4-5 mm	70/sq.cm





### **CORRECT** PLACEMENT OF THE **HANDPIECE**

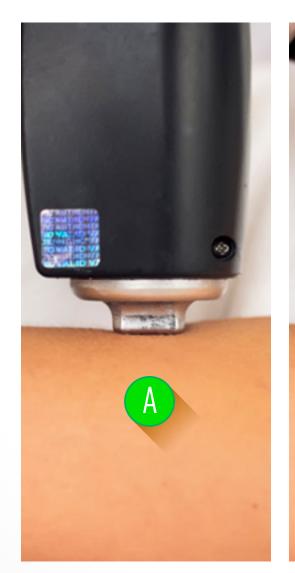
RIGHT PACE

**COVER** THE AREA (OVERLAP)

**PASSES** 

SETTING THE RIGHT PARAMETERS

The handpiece should be placed on the skin at a **90° angle** during the entire treatment to ensure that the spot is fully protecting the skin







- A It's **correctly** placed as the tip is in total contact with the skin
- It's wrongly placed as there are parts of the tip not in direct contact with the skin.
  - If the sapphire is not in contact with the skin, there is no cooling protection, and the laser beam impact against the skin without any cooling, therefore the risk of burning dramatically increases





CORRECT PLACEMENT OF THE HANDPIECE

RIGHT **PACE** 

**COVER** THE AREA (OVERLAP)

**PASSES** 

SETTING THE RIGHT PARAMETERS

The handpiece should move at the **correct pace**, that is:  $2Hz \rightarrow 2$  cm per second,  $3Hz \rightarrow 3$  cm per second and so on.

- If the handpiece is moved faster than this, some areas will not be treated.
- If the handpiece is moved slower than this, some areas will be over treated.

It's recommended to practice and learn to get the right pace.

If in doubt, it's better to move the handpiece slower than the indicated repetition rate than to go faster because it's better firing twice in an area than no firing



02

CORRECT PLACEMENT OF THE HANDPIECE

**RIGHT PACE** 

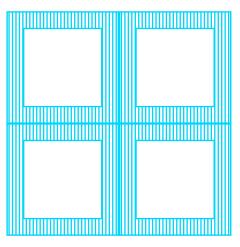
**COVER** THE AREA (OVERLAP)

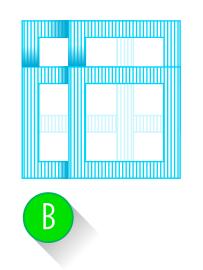
**PASSES** 

SETTING THE RIGHT PARAMETERS

It's **important** to consider that **not all the mirror is a laser window**. The spot of the compact is 15 mm x 15 mm, out of this size, the external perimeter (15 mm x 15 mm x 2.5 mm) lies over a cold frame just to get cold.

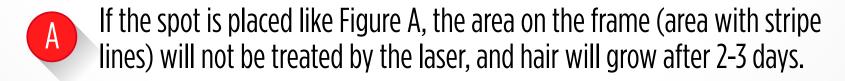
The internal square of 10 mm x 10 mm is the real window where laser goes through and that treats the area.

















CORRECT PLACEMENT OF THE HANDPIECE

RIGHT PACE

**COVER** THE AREA (OVERLAP)

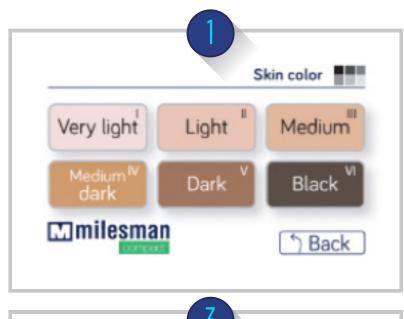
**PASSES** 

SETTING THE RIGHT PARAMETERS



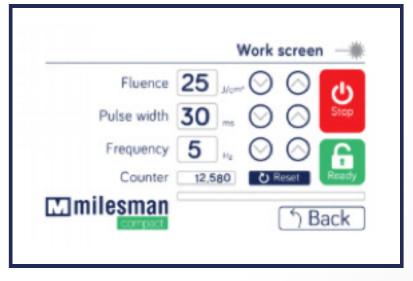


**The parameters indicated** on the preset screens **are a good recommendation to work** with, nevertheless, if the patient tolerates higher fluences or shorter pulses, carefully proceed with them, little by little, to ensure the safety of the patient.









#### STEPS:

- SKIN PHOTOTYPE
- 2 HAIR COLOR
- 3 HAIR THICKNESS





#### PATCH **TEST**



Patch Tests simulate the "real" treatment and should give a clear indication about the Skin Type and possible sensitivity of the client.

#### THE PRACTICE

The test should be performed on a concealed area like the inner side of the forearm.

Set the parameters and follow the treatment guidelines.

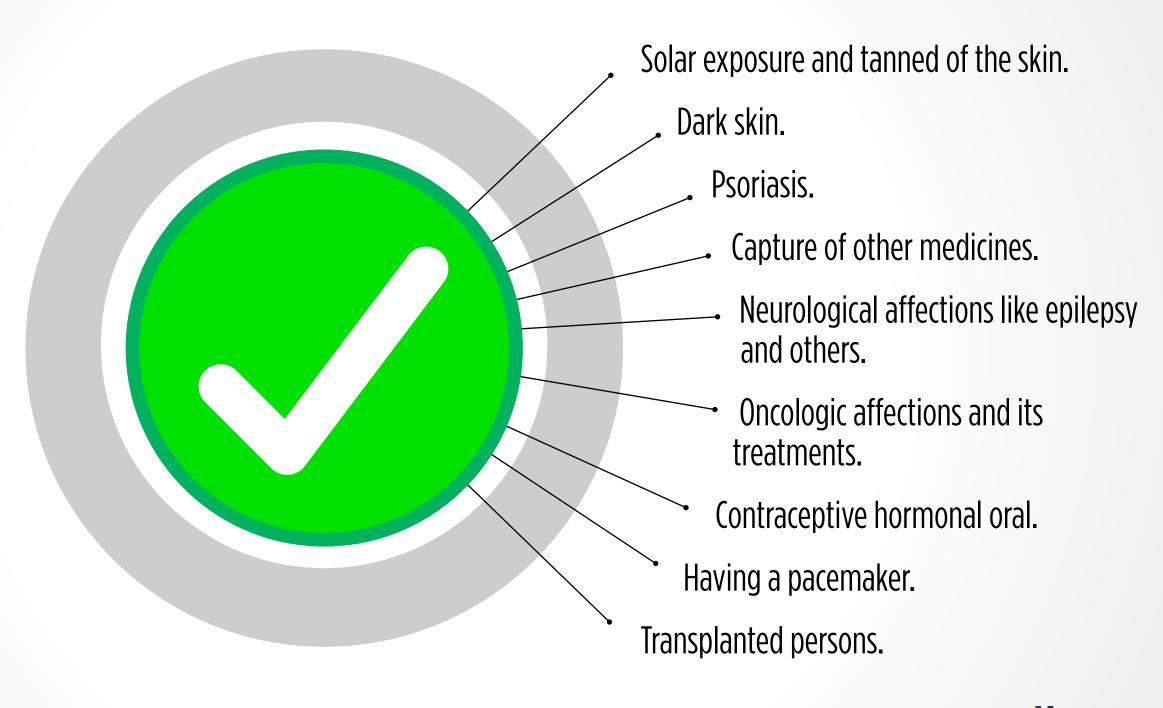
Remove the gel, wait 20 minutes and check the treated area.

If no contraindications are visible, the actual treatment can be started with the approved settings.



# THESE ARE NOT CONTRAINDICATIONS

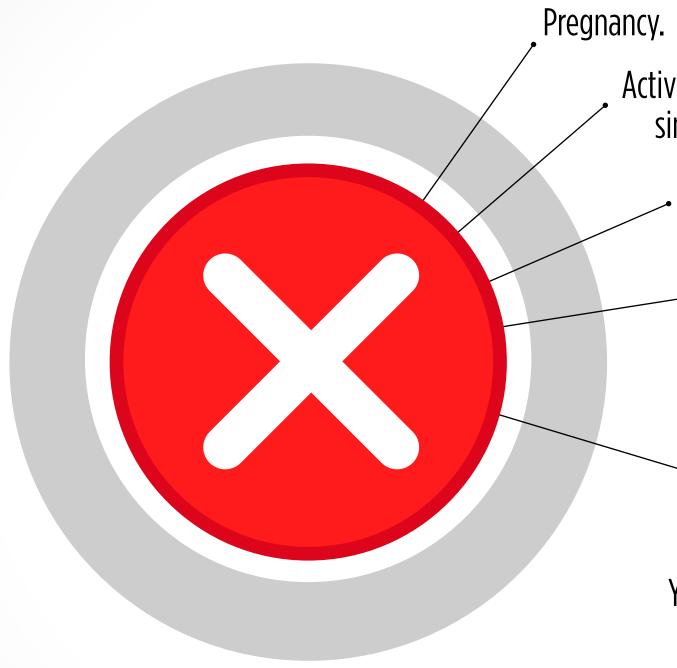








YES THESE ARE CONTRAINDICATIONS



Active infections of the skin (Herpes Zoster or simple, chicken pox, contagious Impetigo, etc...)

Disorders that suppose an important deterioration of the state of health.

 Treatment near the eye that could allow the entry of laser in the eyeball and its impact in pigmented structures as the iris and the retina.

Patients with oral treatment with **ROACUTAN, TIGASON NEOTIGASON** (oral isotretinoin) or treated with CO<sub>2</sub> laser, Erbium Yag or dermabrasion over the last 6 months.





## **BEFORE** THE TREATMENT



- In case of solar or UV beams exposure, tell your treatment provider prior to starting every session to fit the parameters of the treatment.
- Do not depilate the zones, wax or tweezer a month before the treatment; use, if you wish it, other methods that shave the hair but do not extract it.
- Do not apply self tanning products the week prior to the treatment.
- Do not color the hair that is going to be removed 15 days before the treatment.
- Do not use make-up or lotion the day of the treatment in the areas that is going to be treated.
- Do not use cosmetics containing either Glycolic Acid or Retinoic Acid three days before the treatment and three days after.
- Do not use deodorant before or after the laser session if you are going to remove the hair of the axilla.

- If your skin suffers cloasma or trend to the hyperpigmentation, use a local depigmentation product that will be applied two weeks before the treatment.
- In case you suffer persistent labial herpes (more than 1 time per month), contact your doctor to initiate a preventive treatment plan the day before your laser session.
- The treatment is contraindicated in persons who in the last 6 months have been put under oral treatment with **ROACUTAN**, **TIGASON**, **NEOTIGASON** or **ACCUTANE** (oral isotretinoine).
- The treatment is contraindicated in persons who in the last 6 months have submitted the treatment area with a CO<sub>2</sub> Laser, ErbioYag or Dermabrasion.
- Come with the treatment area perfectly shaved, except the facial area which will be shaved by the treatment provider the same day of the treatment.



## **AFTER** THE TREATMENT



- There is an usual appearance of a slight redness and inflammation in the treated areas. It is a sign that the treatment has been effective. This can last up to 72 hours as a maximum.
- You can go back to your normal activities, such as physical exercise, douche and washing the treated areas. You should be careful to not increase the inflammation and redness that takes place due to the treatment. Avoid the sauna or very warm water in the bath for at least 24 hours.
- Some patients (generally dark skin or tanned) can observe small bumps or blisters that disappear. Rarely can they leave a change in the skin color.
- After several days, the treated hair will part easily from your follicles. This fact can be interpreted by erroneous way by the patient deducing that the hair turns to grow and the treatment is not efficient. Do not be alarmed, the treatment has been safely efficient and it implies simply that the rest of the treated hair with laser has to be eliminated and the only route of exit and elimination is the follicle, giving the impression that it grows again when really it is falling down definitively. The local hydration favors the fall of the eliminated hair.

- You can apply treated areas with gels or creams that your doctor has recommended after the treatment.
- In case of exposing the skin to the sun, a solar minimal protector SPF 30 or higher should be used.







SPECIAL FEATURES THAT MAKES MILESMAN COMPACT A UNIQUE TECHNOLOGY



Special features that makes **Milesman** compact a **unique technology** 

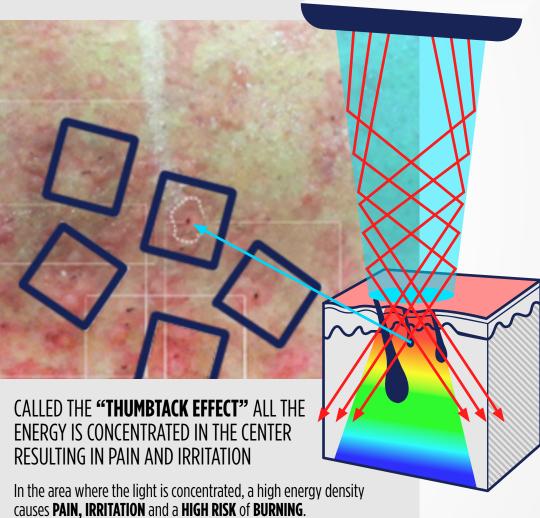
03

**VCSEL** SYSTEM



#### Without **VCSEL** system

OTHER LASERS 🗱

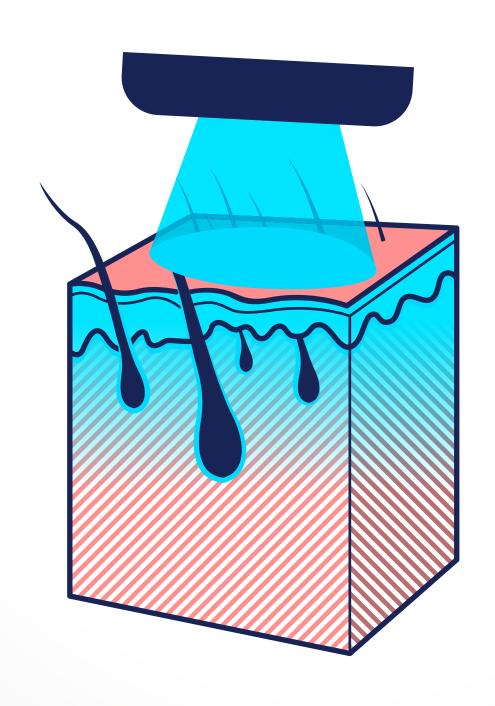


**New laser** emitters capable of producing 810 nm laser light with greater efficiency.

Special features that makes **Milesman** compact a **unique technology** 

03

LASER EMISSION WITH MINIMAL HEAT GENERATION



#### **ADVANTAGES**

Avoids the necessity of a heavy, secondary chiller unit.

Latest generation diodes are 90% more reliable than current diode technology.



Special features that makes **Milesman** compact a **unique technology** 

03

#### RECOVERY OF REFLECTED LIGHT

15% of the laser light is reflected when it comes in contact with the skin. Milesman has a unique technology for recovering this reflected light.



#### **ADVANTAGES**

Nearly 100% of available laser energy is utilized.

Produced longer lived diodes.



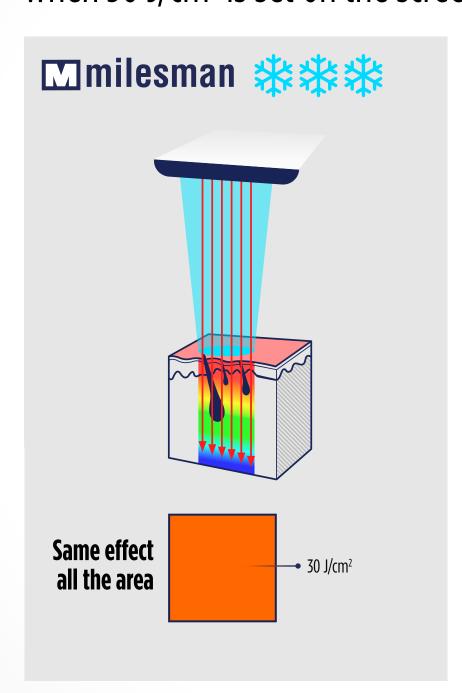
## **Difference between Milesman Compact and other lasers** when 30 J/cm<sup>2</sup> is set on the screen.

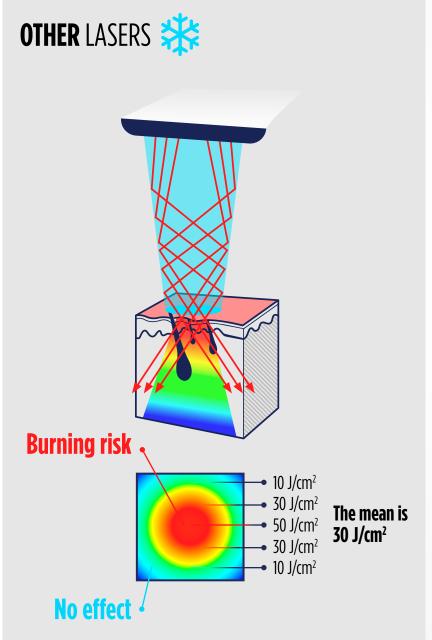
Special features that makes **Milesman** compact a **unique technology** 

03

#### **Optimized distribution**

of laser light. Deeper and better penetration in the skin and more homogeneous energy distribution







Special features that makes **Milesman** compact a **unique technology** 

03

#### ULTRA-POWERFUL COLD TIP



#### **New cooling**

system located in the handpiece tip achieves a stable low temperature.

#### **ADVANTAGES**

Virtually eliminates discomfort during treatment.

Protects the skin more effectively.





**-04** 

HAIR REMOVAL MARKET



HAIR REMOVAL MARKET

04

# THE FUTURE OF LASER HAIR REMOVAL

PROFITABLE

High growth due to the fact that the treatment is becoming more known and has cheaper prices.

STRATEGIC

Key service that must be provided to avoid the loss of patients seeking service in other centers.

MASSIVE

It becomes a known and demanded service. It stops being an "elitist" treatment. Affordable prices, which means a lot of customers.

HAIR REMOVAL MARKET

04

#### **REQUIREMENTS**

OF A HAIR REMOVAL LASER TO HAVE BUSINESS OPPORTUNITIES

FAST	To do large areas in a short time.
ROBUST	Since many sessions are going to be done, it is required that the laser does not break down, nor heat up.
POWERFUL	Since sessions are usually sold in packs (all the needed sessions) it 's important to get results in few sessions and to get that a powerful laser us required.
NO CONSUMABLES	To not increase the costs.
PAINLESS	No patient tolerates pain.
PORTABLE	If the laser is portable there are new business opportunities.
ALL SKIN TYPES	To treat anybody.



