

THE LARGEST
DIODE LASER
FAMILY
FOR HAIR
REMOVAL



2021.05

V DEC 2020

Milesman is a company doing business in more than 40 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.



THE LARGEST DIODE LASER FAMILY FOR HAIR REMOVAL



M milesman
compact
810 nm

M milesman
compact alex
755 nm

M milesman
compact yag
1064 nm

M milesman
compact blend
755, 810, 940 and 1064 nm



**DR. ROX ANDERSON INVENTOR OF
LASER HAIR REMOVAL**



**1997: DR. ROX ANDERSON FROM WELLMAN CENTER FOR
PHOTOMEDICINE IN HARVARD MEDICAL SCHOOL DISCOVERED
HOW TO EFFECTIVELY REMOVE HAIR WITH A LASER.**

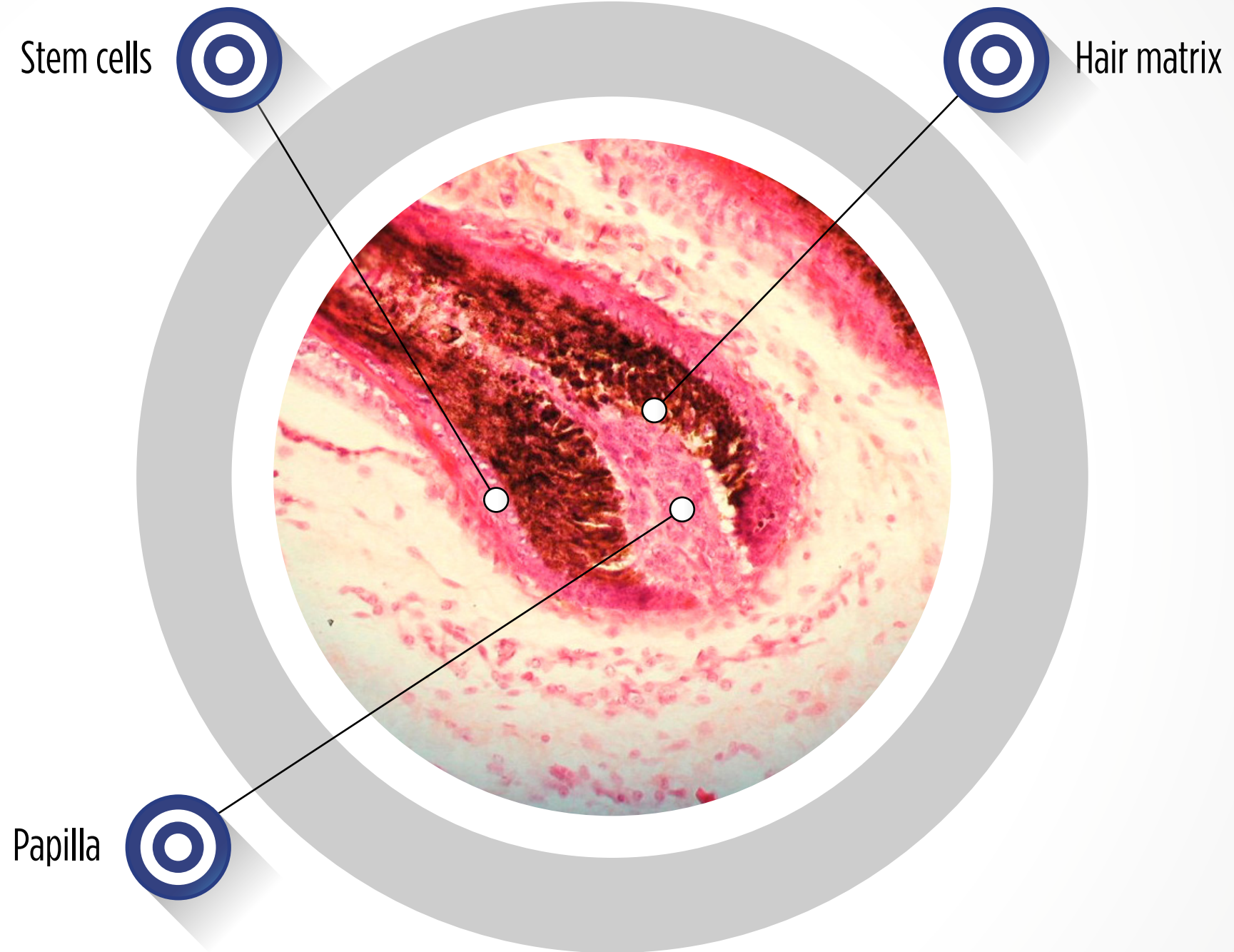
**2007: MILES MANUFACTURED A LASER THAT EXACTLY
MET THE REQUIREMENTS OF WELLMAN CENTER, TO
PERMANENT REMOVE HAIR.**



About lasers and hair

01

HAIR REMOVAL LASER TARGETS





About lasers and hair

01

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.

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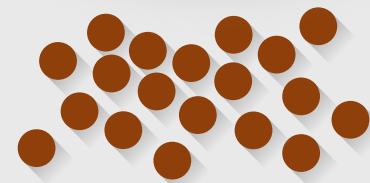
About lasers and hair

01

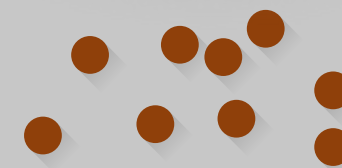
MELANIN

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

Melanin



HIGH CONCENTRATION OF MELANIN, DARK HAIR AND BLACK SKIN



LOW CONCENTRATION OF MELANIN, LIGHT HAIR AND WHITE SKIN



About lasers and hair

01

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 PHOTOTHERMOLYSIS)

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.



About lasers and hair

01

MAIN CONCEPTS

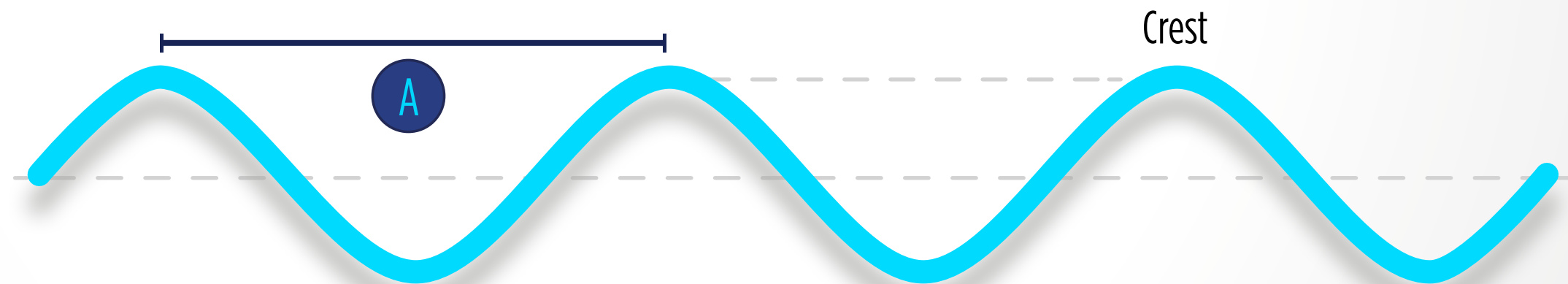


WAVELENGTH

A 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.





About lasers and hair

01

MAIN CONCEPTS



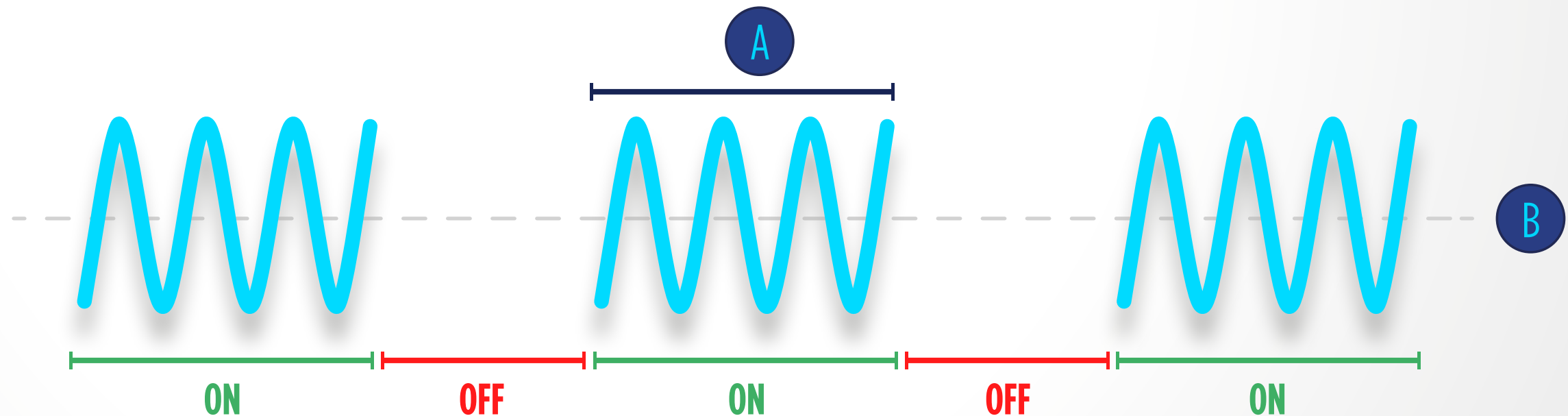
PULSE LENGTH

Definition:

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

A Pulse length

B Time





About lasers and hair

01

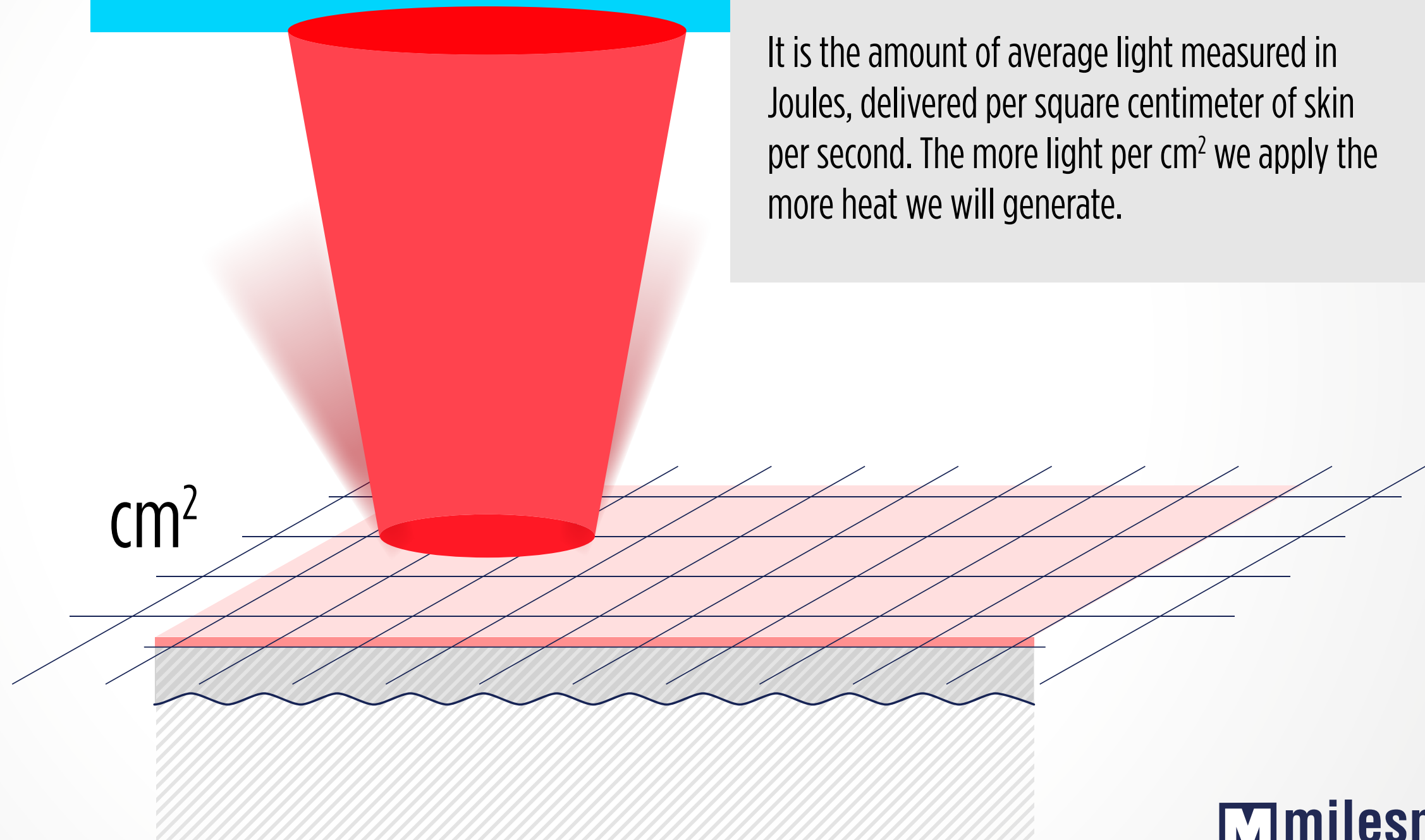
MAIN CONCEPTS



FLUENCE

Definition:

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





About lasers and hair

01

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**.



About lasers and hair

01

WHAT IS THE “RIGHT” LASER?



RIGHT 
WAVELENGTH

RIGHT 
PENETRATION

RIGHT 
PROTECTION



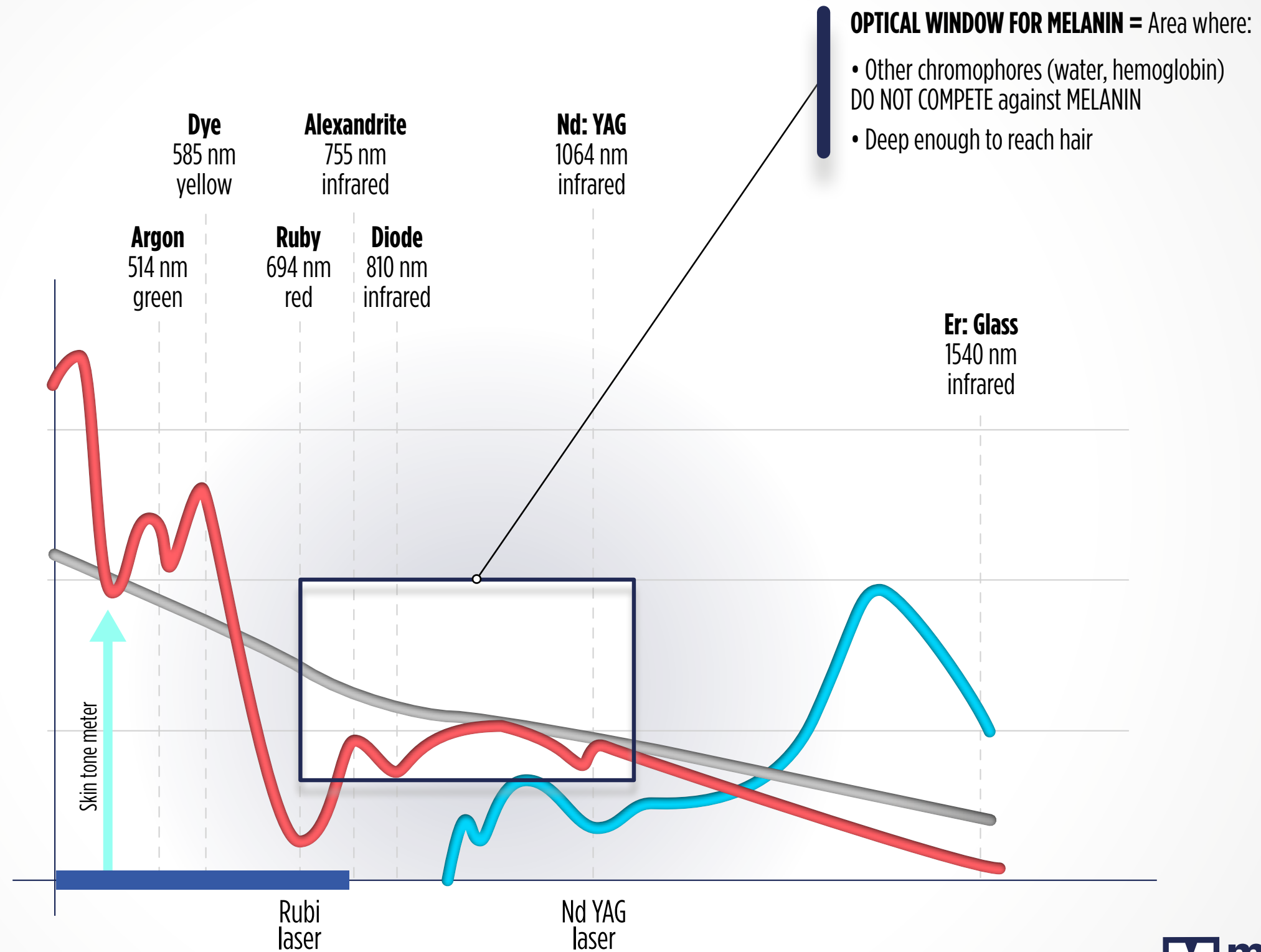
About lasers and hair

01

RIGHT WAVELENGTH

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

- Melanin
- Oxyhemoglobin
- Water





About lasers and hair

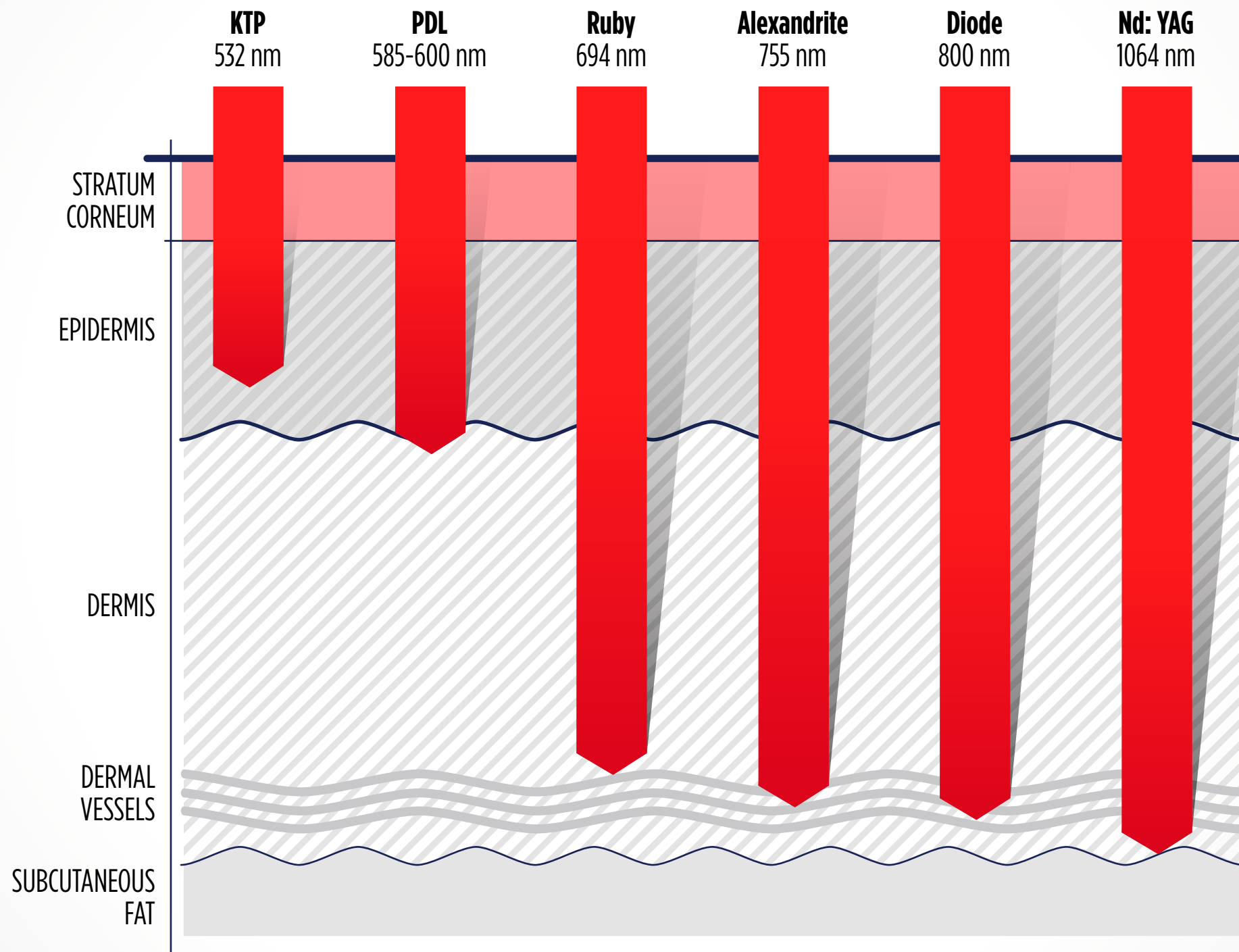
01

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.

Depth of penetration by various lasers



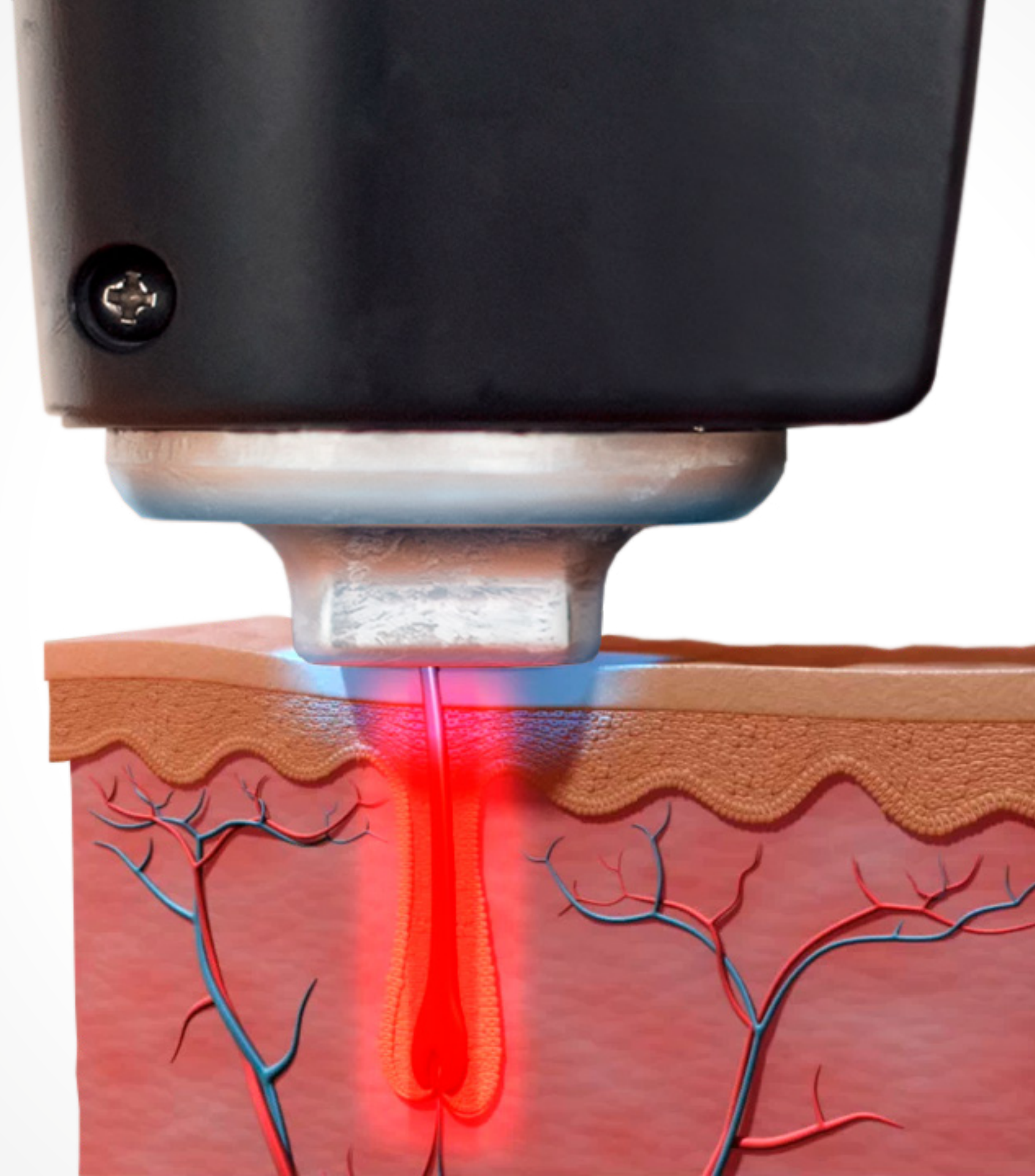


About lasers and hair

01

RIGHT PROTECTION

Cooling with a Sapphire



- ✓ **Thermally very conductive material:** facilitates a good distribution of **COLD**
- ✓ Allows a constant refrigeration even when the laser is being applied
- ✓ IT IS RESISTENT
- ✓ By pressing against the skin, it clears the blood from the vessels (hemoglobin) and brings the root to the surface



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SUMMARY

THE PERFECT LASER IS:

- **810 nm**
- **FLUENCE OVER 20 J/cm²**
- **PULSE LENGTH UNDER 30 ns**
- **COLD TIP**



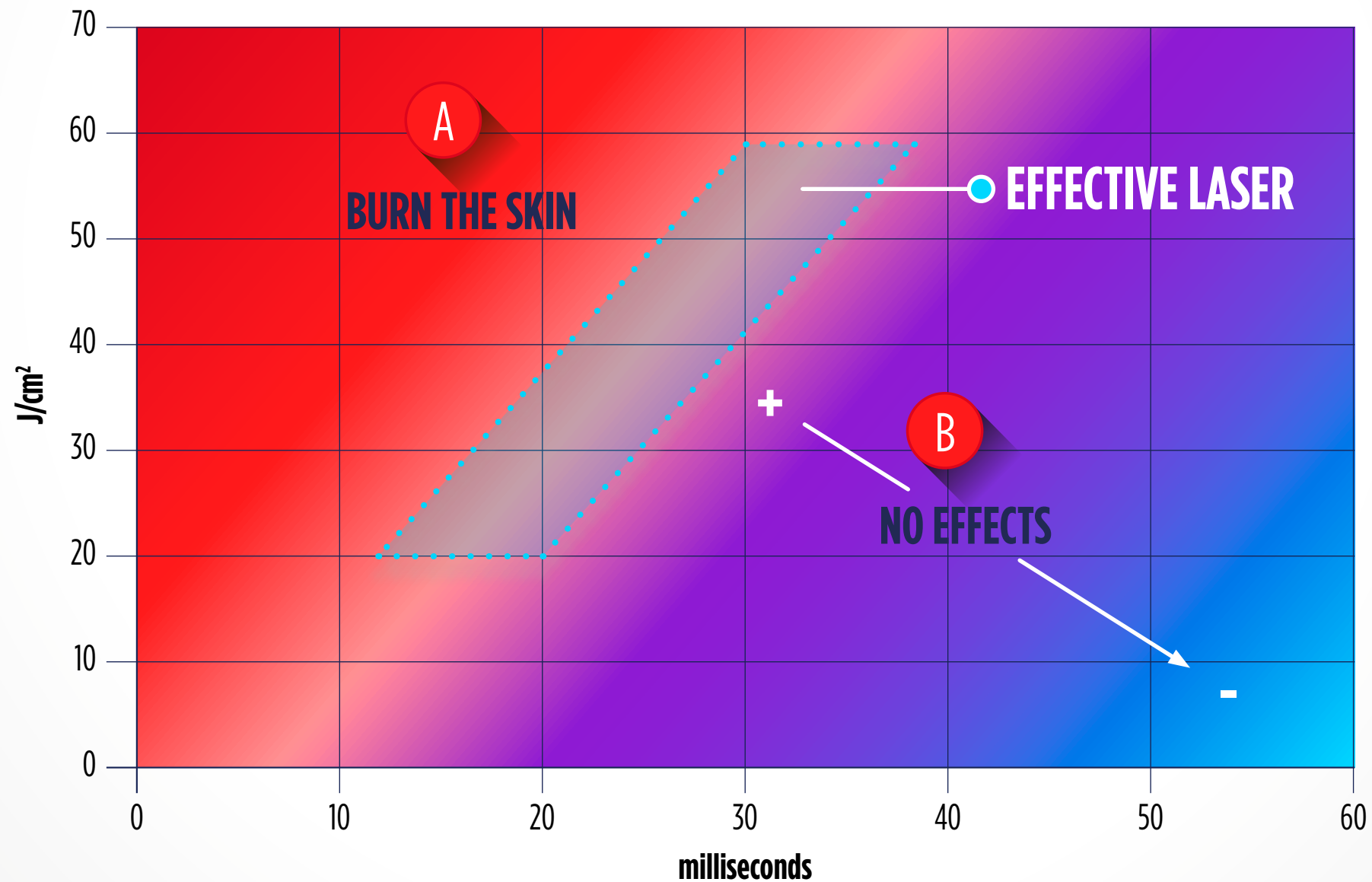
About lasers and hair

01

THE IMPORTANCE OF POWER IN LASER HAIR REMOVAL

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.



Therefore:

- A A LOT OF POWER**
Dangerous! Risk of burning the skin
- B A LITTLE POWER**
Not effective

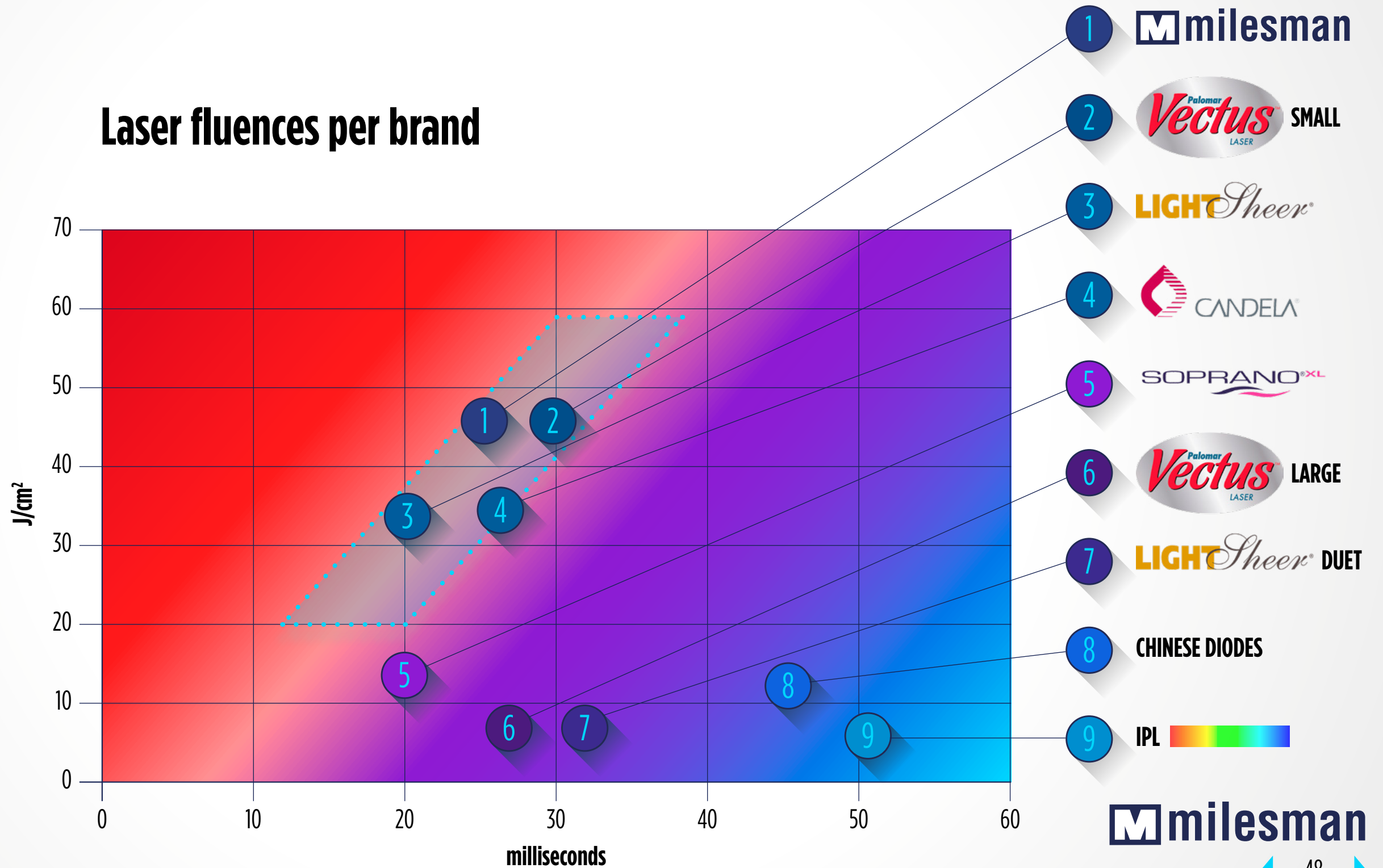


About lasers and hair

01

LASERS ON THE MARKET

Laser fluences per brand



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About lasers and hair

01

LASERS ON THE MARKET

PRICE vs RESULTS BY BRANDS

RESULTS ▶

| | | Poor results | Good |
|---------|-----------|---|---|
| PRICE ▲ | Cheap | <p>CHINESE DIODES</p> <p>IPL </p> | <p>OPPORTUNITY</p>  |
| | Expensive |    |    |



ADVANTAGES OVER OTHER LASERS

- **PORTABLE 9 KG VS +35 KG OTHER LASERS**
- **ROBUST**
- **VERY FEW SIDE EFFECTS**
- **NOISELESS**
- **NO HEAT IN THE ROOM**
- **LOW MAINTENANCE**

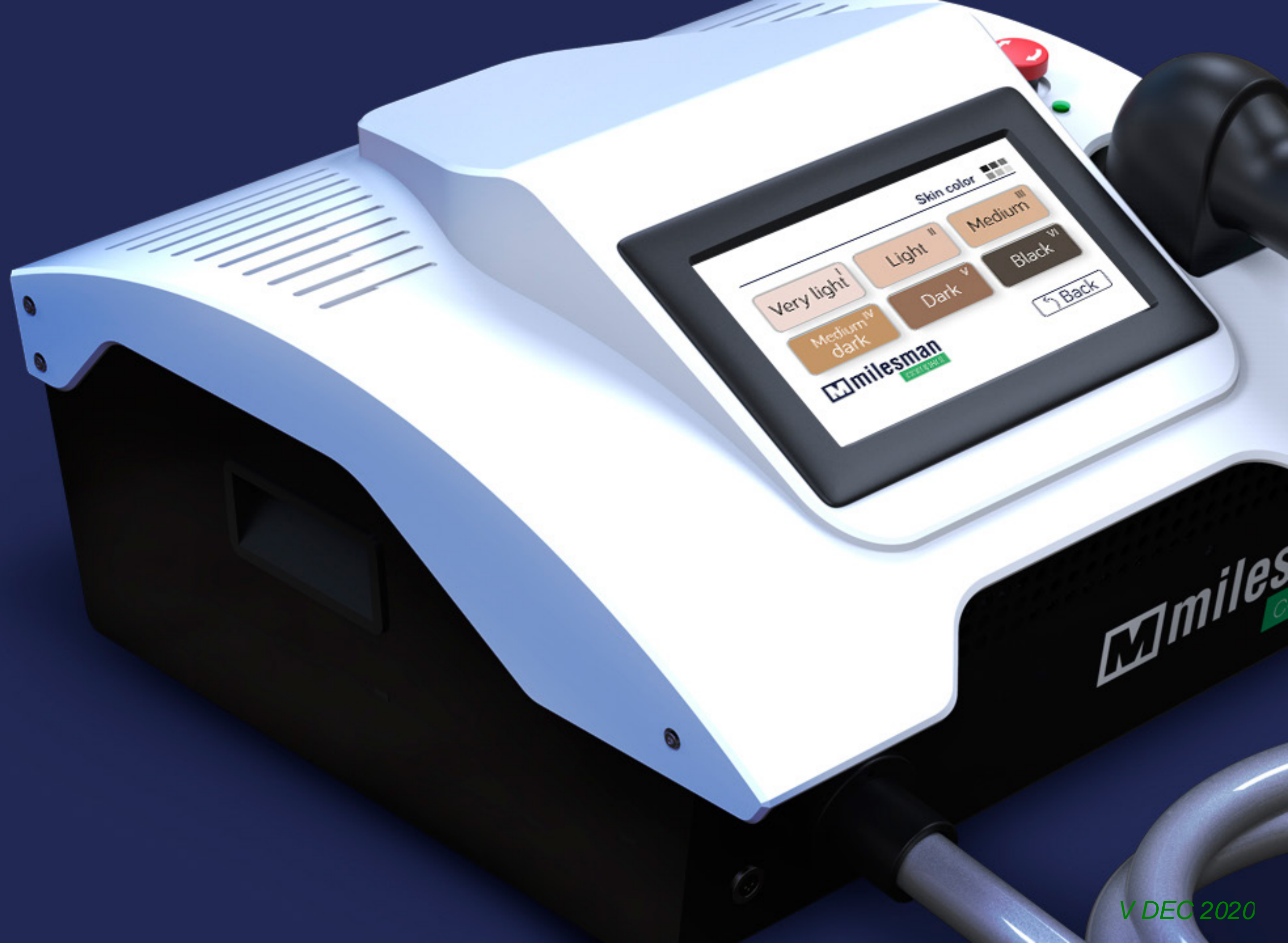
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03

SPECIAL
FEATURES
THAT MAKES
MILESMAN
COMPACT
A **UNIQUE**
TECHNOLOGY



BACK





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

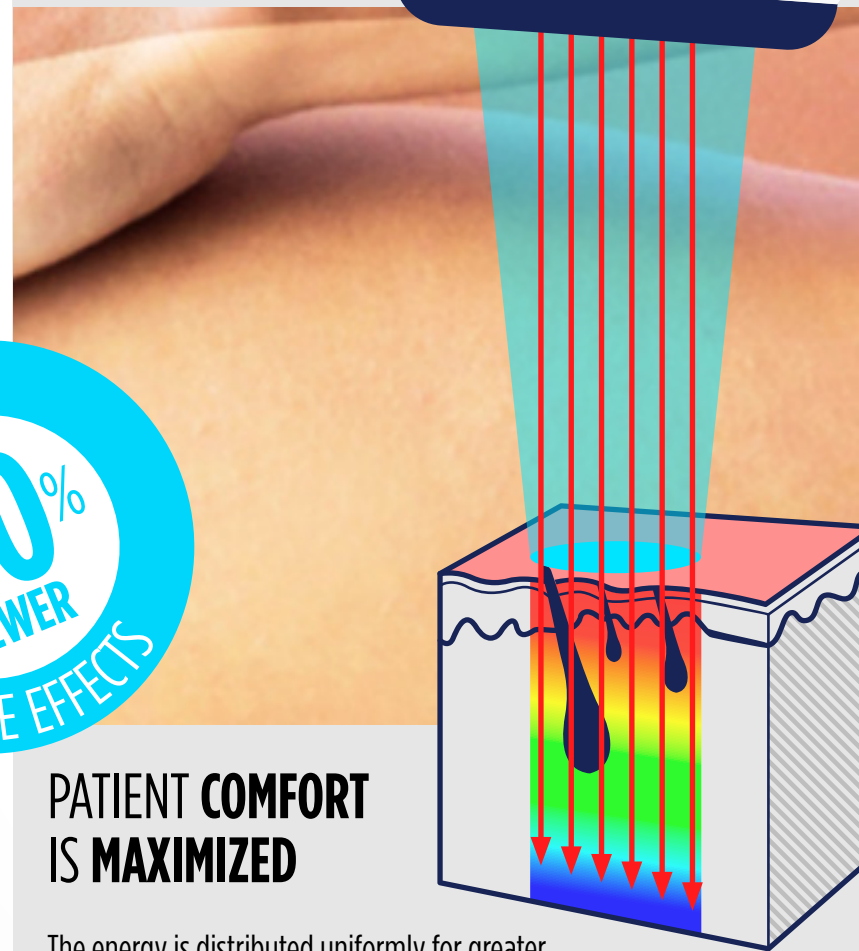
03

VCSEL SYSTEM

UP TO
90%
FEWER
SIDE EFFECTS

With VCSEL system

M milesman ❄️❄️❄️

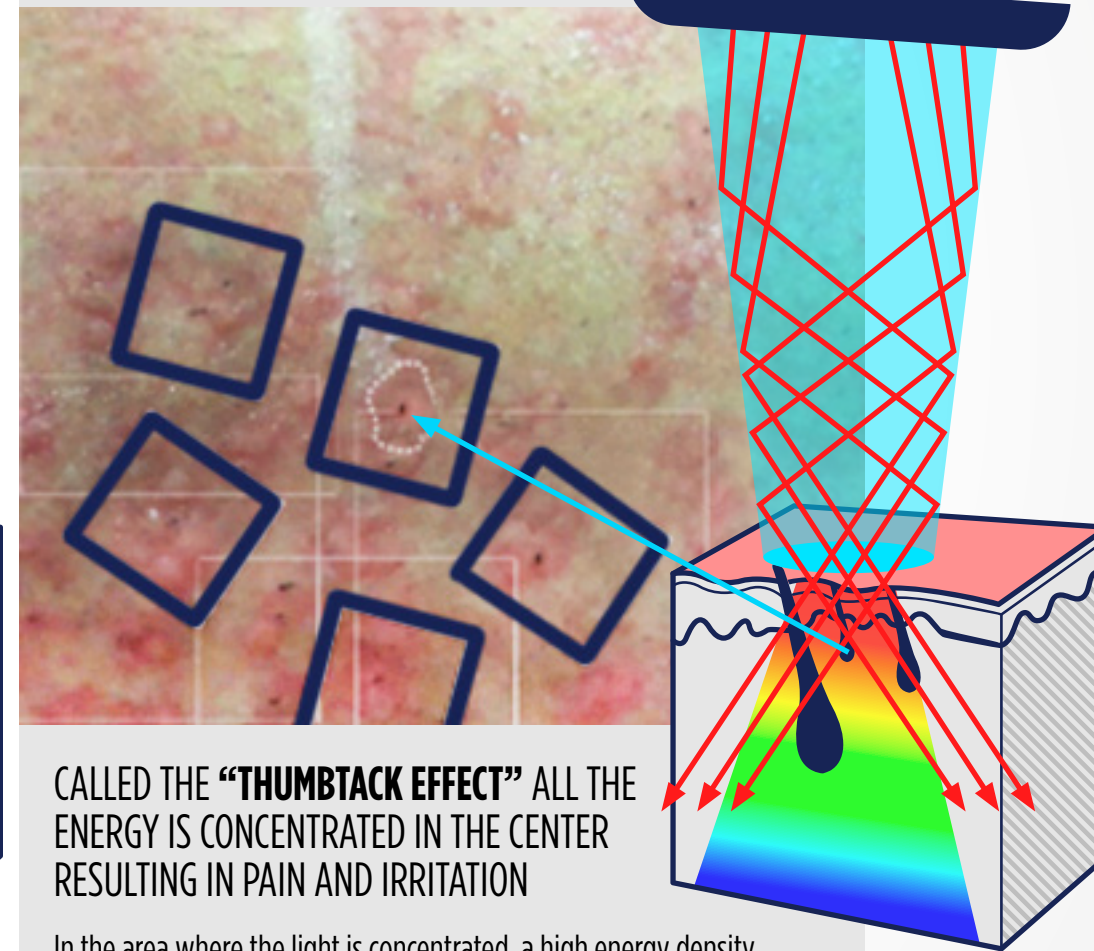


PATIENT COMFORT IS MAXIMIZED

The energy is distributed uniformly for greater efficiency, less perceived pain.

Without VCSEL system

OTHER LASERS ❄️



CALLED THE “**THUMB TACK EFFECT**” ALL THE ENERGY IS CONCENTRATED IN THE CENTER RESULTING IN PAIN AND IRRITATION

In the area where the light is concentrated, a high energy density causes **PAIN, IRRITATION** and a **HIGH RISK** of **BURNING**.

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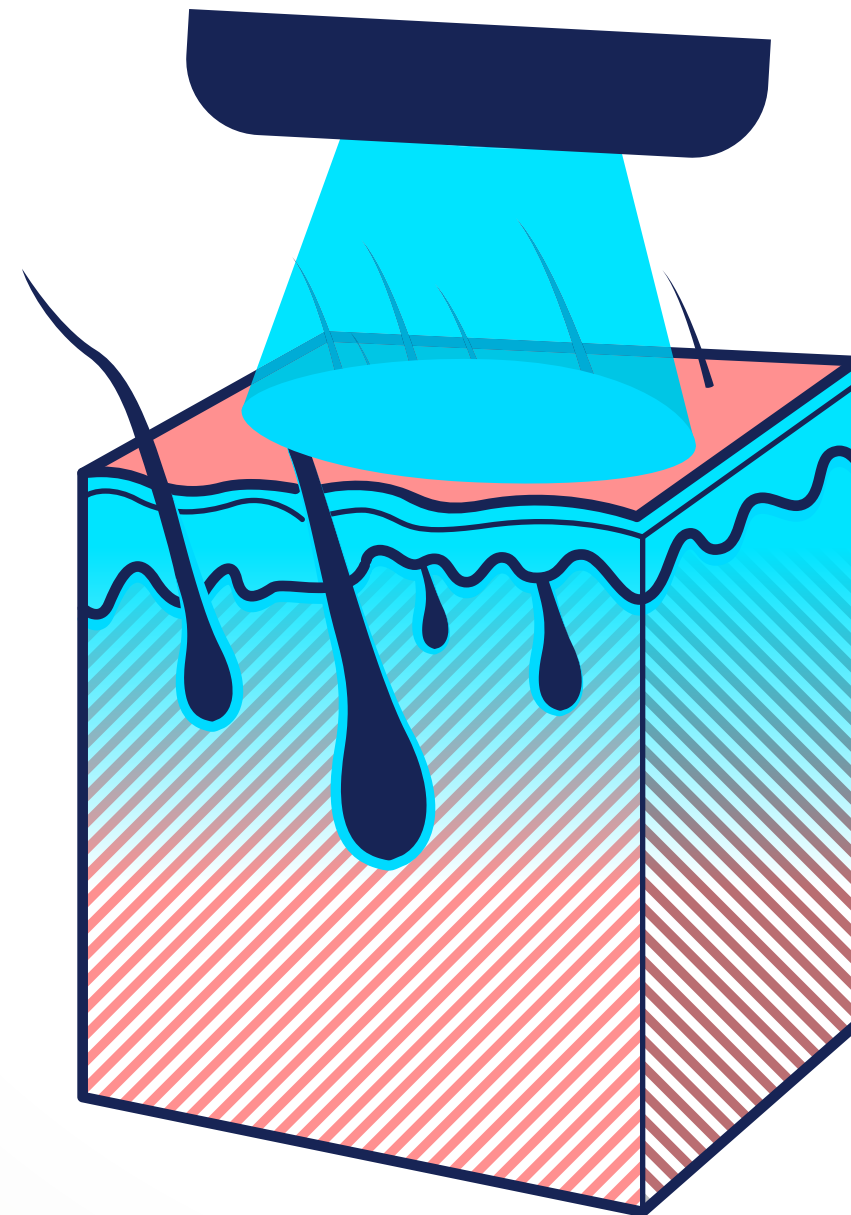
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Special features that makes **Milesman** compact a **unique technology**

03

**LASER
EMISSION
WITH
MINIMAL
HEAT
GENERATION**

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



ADVANTAGES

Avoids the necessity of a heavy, secondary chiller unit.

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

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◀ 64 ▶

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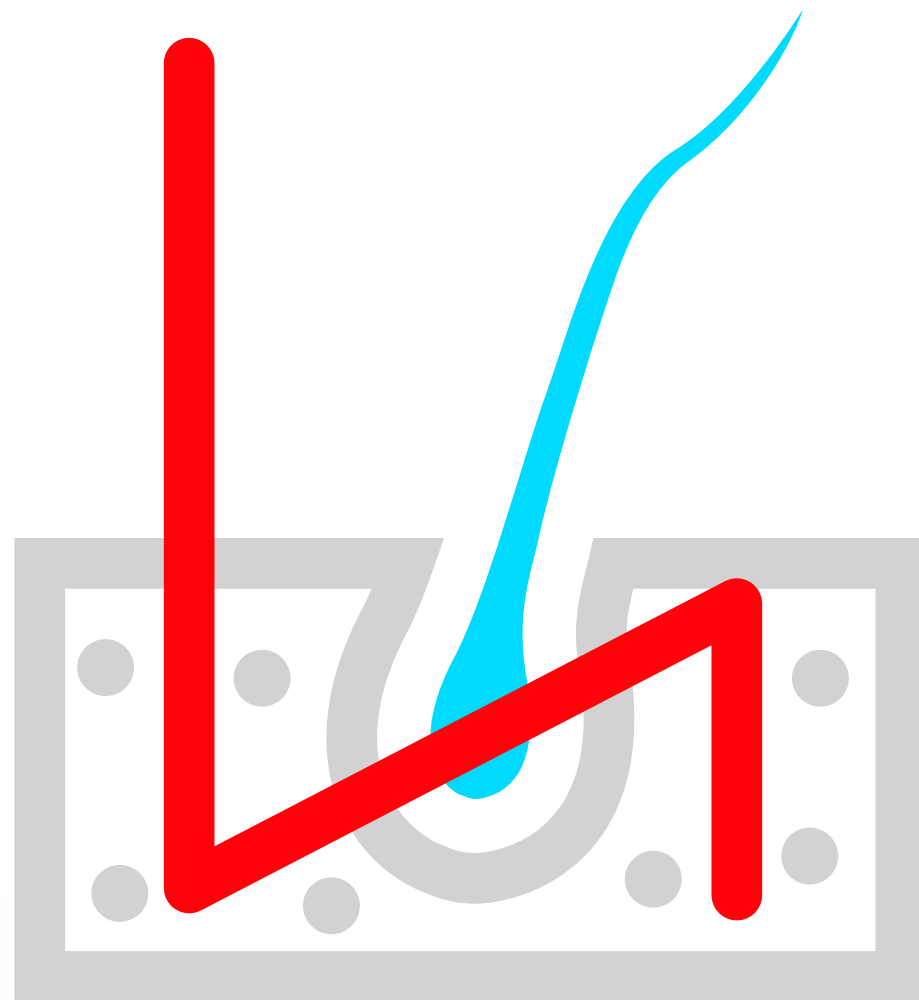


Special features that makes **Milesman** compact a **unique technology**

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.

 **milesman**



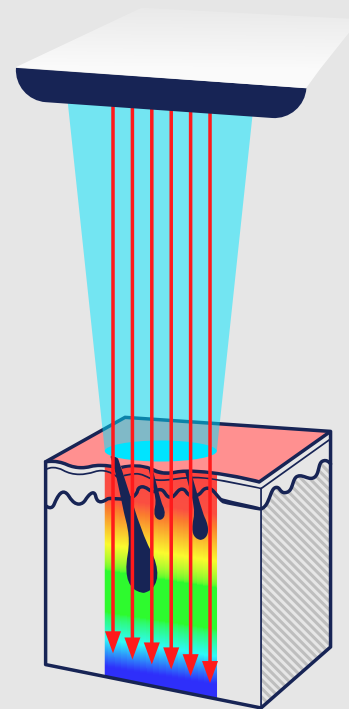
Special features that makes **Milesman compact** a **unique technology**

03

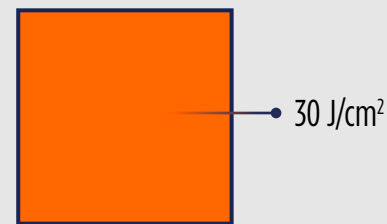
Difference between Milesman Compact and other lasers when 30 J/cm² is set on the screen.

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

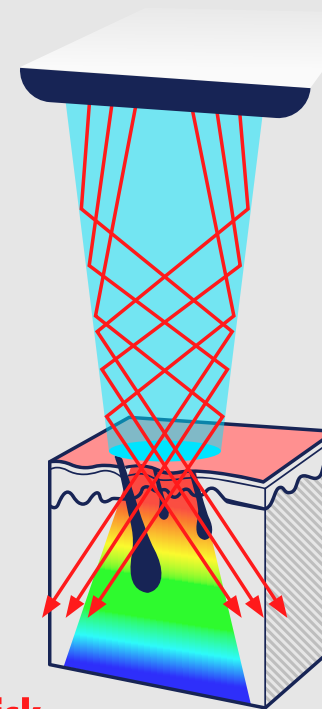
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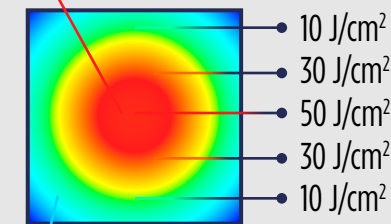
Same effect all the area



OTHER LASERS ❄️



Burning risk



The mean is 30 J/cm²

No effect

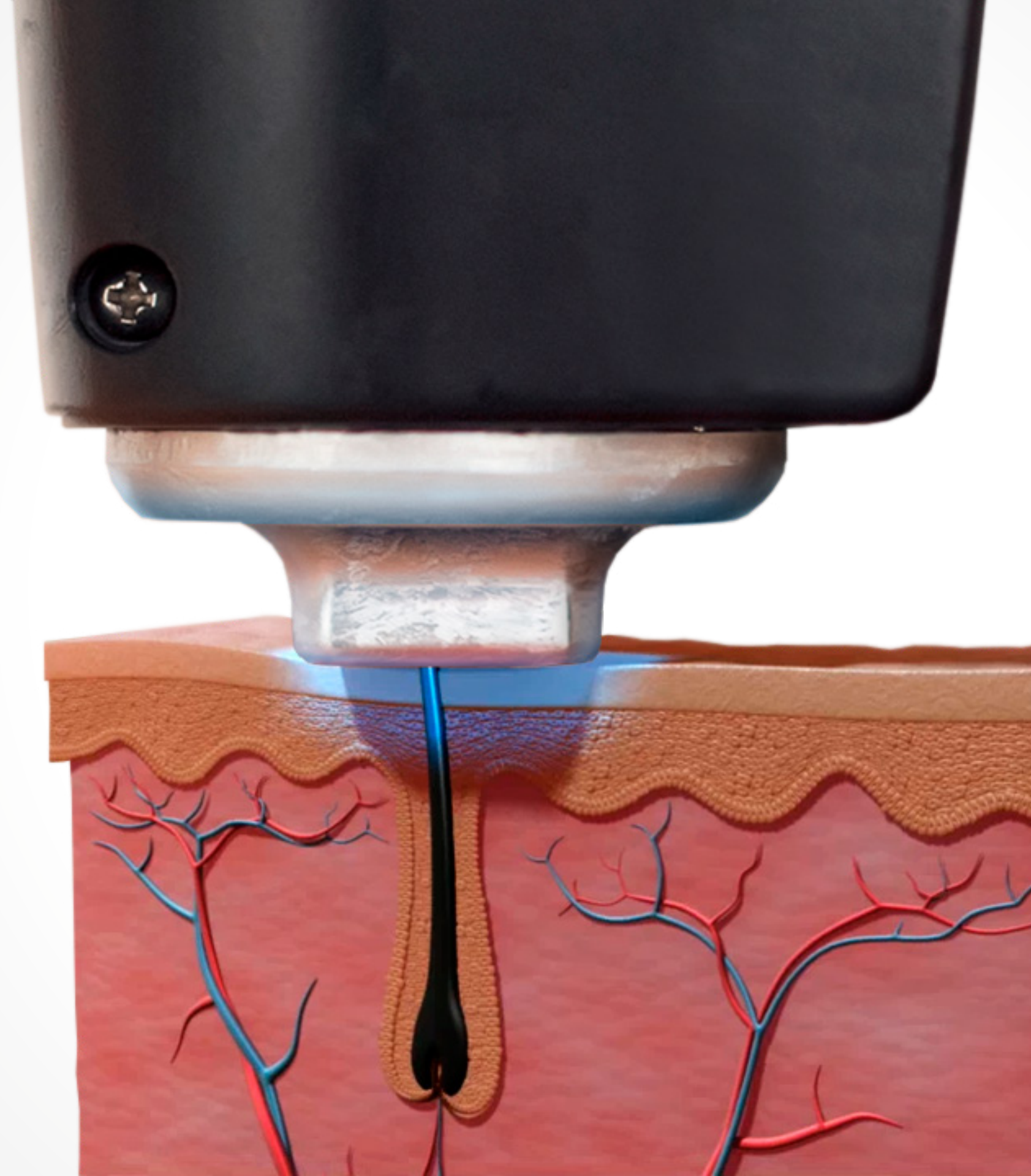
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Special features that makes **Milesman** compact a **unique technology**

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.

 **milesman**

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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 is 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. |

MAKE LASER HAIR REMOVAL MASSIVE

WITH **M** milesman IT IS POSSIBLE
compact

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