



THE ASCLEPION EFFECT

MeDioStar NeXT

- Innovation Made in Germany -

Next Generation of High Power Diode Laser



THE ASCLEPION EFFECT

1999
MeDioStar HC

2005
MeDioStar XT/miXT

2008
MeDioStar Effect
(with add. modules)

2011
MeDioStar NeXT



Specifications



THE ASCLEPION EFFECT

Laser:	high power diode, class 4
Wavelength:	800 nm to 950nm maximum at 810nm for hair removal, maximum at 940nm for vascular treatments
Energy:	Up to 60 J
Pulse width:	Up to 400 ms
Frequency:	Up to 12 Hz
Display:	8,4" LCD touch screen
Fluence:	STD: 44 J/cm ² , HP: 90 J/cm ² , VAS: 210 J/cm ²
Dimensions:	365 x 560 x 465 mm (w x d x h)
Weight:	35 Kg (System), 300 g (Handpiece)
Power Input:	universal input power supply 100 – 240 VAC 50/60 Hz



**MeDioStar NeXT
with and without trolley**

Features • Design • Handpiece • Beam Profile • Skin Cooling • Double Pulse • Speed • Display



THE ASCLEPION EFFECT

Device

- Modern, reliable laser technology „Made in Germany“
- Portable device, elegant design (optional trolley)
- Intuitive operation thanks to 8,4 Zoll touch screen
- Easy to use
- Before and after photos and videos at display



Features • Design • Handpiece • Beam Profile • Skin Cooling • Double Pulse • Speed • Display



THE ASCLEPION EFFECT

Application

- High Fluence with large spots for effective treatments
- Fast treatment of large areas
- Homogeneous beam profile of the spots to minimize side effects
- Effective skin cooling intergrated in the handpiece with automatic control od the skin temperature for gentle and convenient treatment with high efficiancy
- Double pulse for additional safety
- No consumables



Features . Design • Handpiece • Beam Profile • Skin Cooling • Double Pulse • Speed • Display



THE ASCLEPION EFFECT

- Storage space for footswitch and power cord in trolley
- Easiest transportation on trolley or by hand
- Safe and „quick release“ – connection between the 2 modules
- Washable, removable rubber product placement area





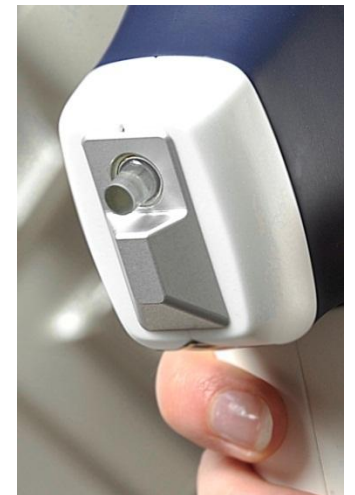
THE ASCLEPION EFFECT

Specs of handpieces

STD (standard): hair removal, acne, rejuvenation
Spot size 14 x 10 mm², square shaped beam
Fluence max. 44 J/cm²
Frequency max. 4Hz,
max. 12 Hz with SmoothPulse
(dependent on Fluence)

HP (high power): hair removal of finer hair (acne, rejuvenation)
Spot size 6 x 8 mm², square shaped beam
Fluence max. 90 J/cm²
Frequency max. 4Hz,
max. 12 Hz with SmoothPulse (dependent on Fluence)

VAS (vascular): vascular treatments, lentigines
Spot size 3 x 4 mm², square shaped beam
Fluence max. 210 J/cm²
Frequency max. 4 Hz





THE ASCLEPION EFFECT

MedioStar NeXT a perfect combination of 2 wavelenghts

- 810 nm: long term proved wavelength for hair removal, high absorption in Melanin, little absorption in oxyhemoglobine
- 940 nm: higher absorption in oxyhemoglobine (coagulation of blood vessels up to 2 mm of diameter, deeper penetration into skin, less discomfort on darker skin types
- The combination of both wavelength is most suitable for hair removal applications on all skin types
- Pure 940 nm vascular handpieces bring most efficuous results on leg veins and facial vessels



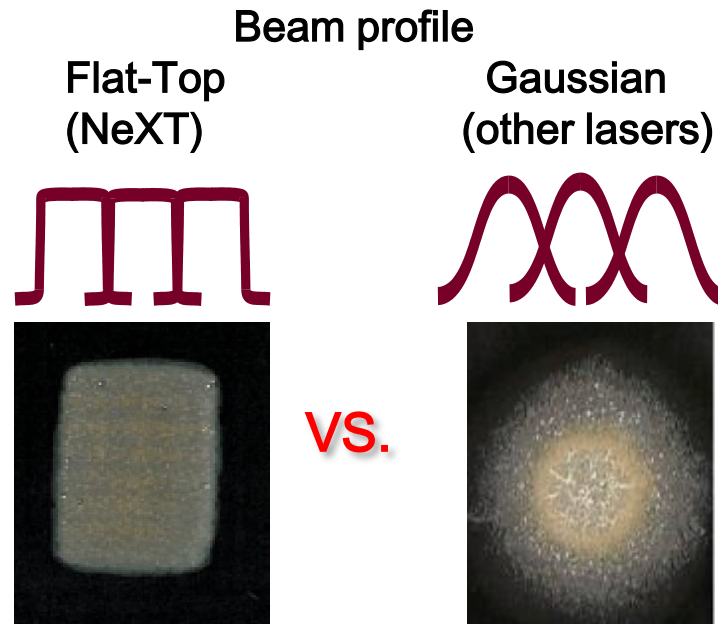


THE ASCLEPION EFFECT

Homogeneity of the laser spot

- Optimized profile generated by quartz fiber bundle (TAPER technology)
- Sapphire coated (to prevent in-burn of particles)
- Square shaped (no gaps between spots, no overlap)
- Most homogenous beam profiles
- Flat top profile – same Fluence all over the spot (no ,hot spots‘)
- Fiber bundle tapers for optimal light delivery
- No energy losses

TAPER technology magnification of writing without distortion shows homogeneity

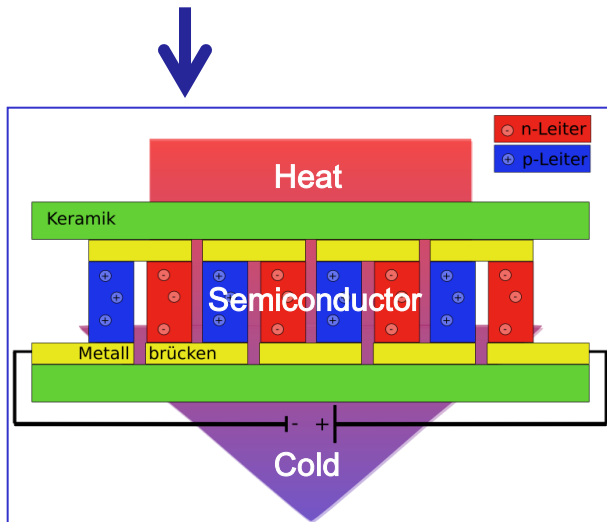




THE ASCLEPION EFFECT

Principle of Skin Cooling

- Contact skin cooling by cold metal probe
- Pre-cooling of epidermis
(move handpiece in direction to cold metal probe)
- Aluminium has 8 times better cooling effect compared to Sapphire (used by others for skin cooling)
- Immediate readiness after switch - on
- Smallest volume
- Peltier elements in handpiece



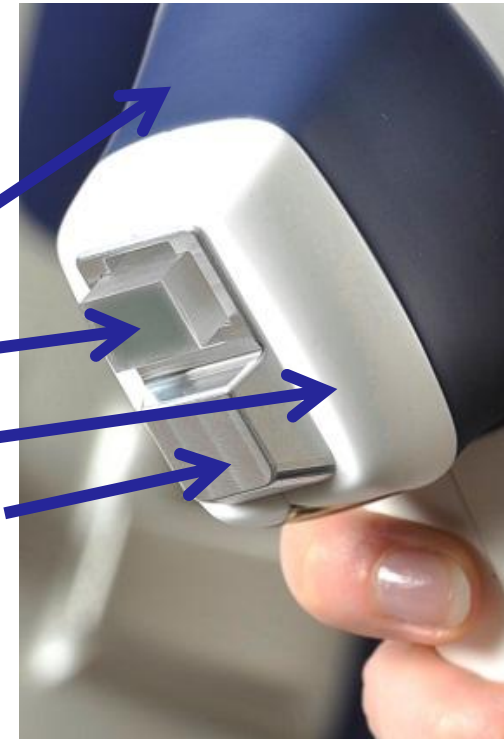
Bismut-Tellurid Bi_2Te_3
Silizium-Germanium SiGe

Diode stack

Laser tip

Peltier elements

Skin cooling

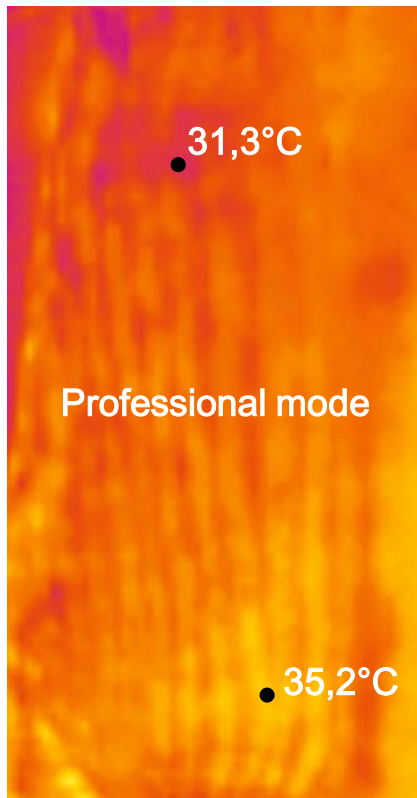




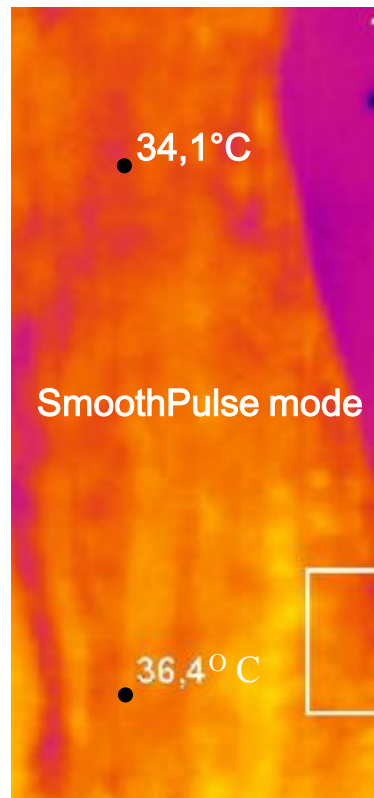
THE ASCLEPION EFFECT

Safety by skin cooling

- Study by Fiskerstrand 2003: less side effects with MeDioStar compared to LightSheer
- Nemeth ASLMS 2004: 978 treatments (skin type I to VI), 5 transient hyperpigmentierungen = 0,5%



40J/cm² - 2,1Hz - 1Pass



12J/cm² - 7,7Hz - 4 Passes

Thermal image

during treatment of a back
(at the top: hip – at the bottom: shoulder)

Safe application, because of automatic control of cooling temperature

Note:

with same parameters higher temperature above bones (in this case: shoulder blade) compared to areas without bones

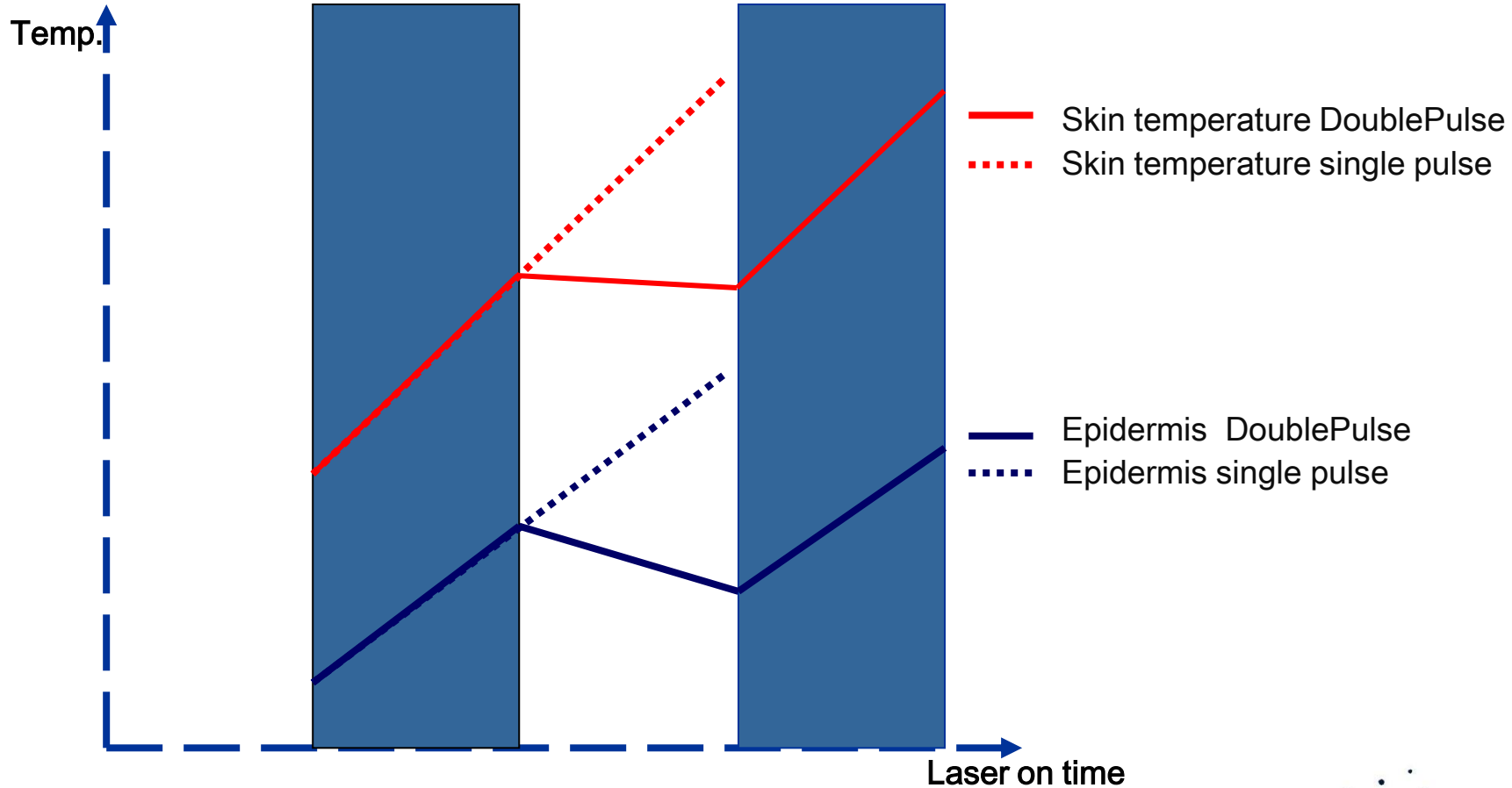
➤ caution above bones ! Bones prevent the penetration of laser light / heat into the depth of the skin, more heat at epidermis!

• : place of temperature measurement



THE ASCLEPION EFFECT

Safety by DoublePulse:



Safety thanks DoublePulse: rise in temperature is dependent on Melanin content of the hair and of the Epidermis. The cold metal probe of the handpiece cools especially the Epidermis.



THE ASCLEPION EFFECT

Fast treatments

	MeDioStar	vs.	MeDioStar NeXT
Spot size (STD)			+ 13%
Frequency at 30 J/cm ²			+ 40%
Frequency at 35 J/cm ²			+ 60%
Frequency at 40 J/cm ²			+ 100 %

Treatment time of a back:

Profesional/Basic: about 5.5min (1 pass with 2.1Hz / 40J/cm²)

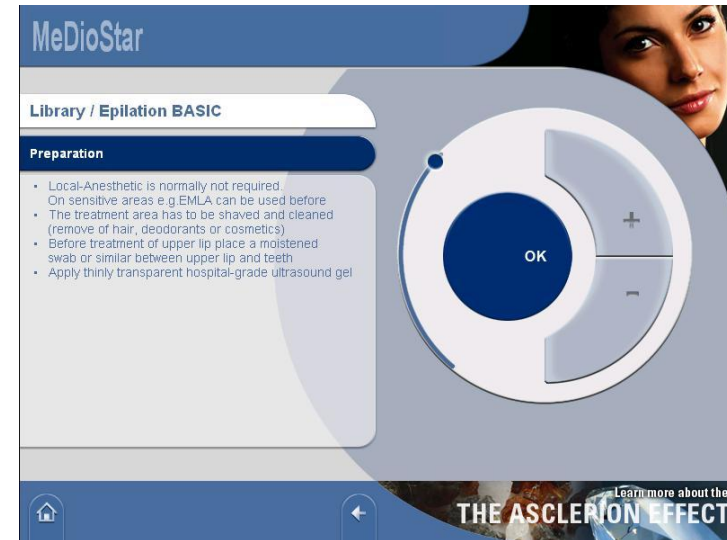
SmoothPulse: about 7.5min (4 passes with 7.7Hz / 12J/cm²)

Features • Design • Handpiece • Beam Profile • Skin Cooling • DoublePulse • Speed • Display



- Large colored, easy-to-use touch-screen
- Windows XP based
- Logically placed menu structure
- Touch screen pen
- Pre & post treatment picture library
- Video library
- Pre & post treatment suggestion
- The Asclepion Effect – learn more about Asclepion

THE ASCLEPION EFFECT

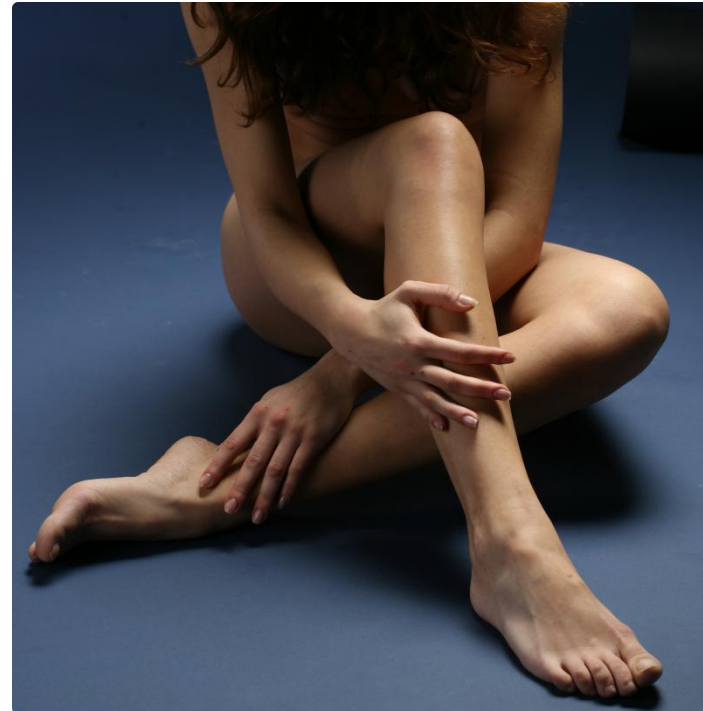




THE ASCLEPION EFFECT

MedioStar NeXT applications

- hair removal
 - vascular lesions
 - acne
 - skin rejuvenation
 - skin tightening
 - removal of pigmentations
 - skin whitening
-
- a large applicator for all skin rejuvenation procedures is still under R&D





THE ASCLEPION EFFECT

Indications

- For all areas
(besides directly around the eyes)
- For all skin types
(extra care with skin type V and VI)
- For all colours of hair
(besides white/grey,
light blond, red – Pheomelanin)



Application · Hair Removal · Vascular Treatments · Acne · Rejuvenation

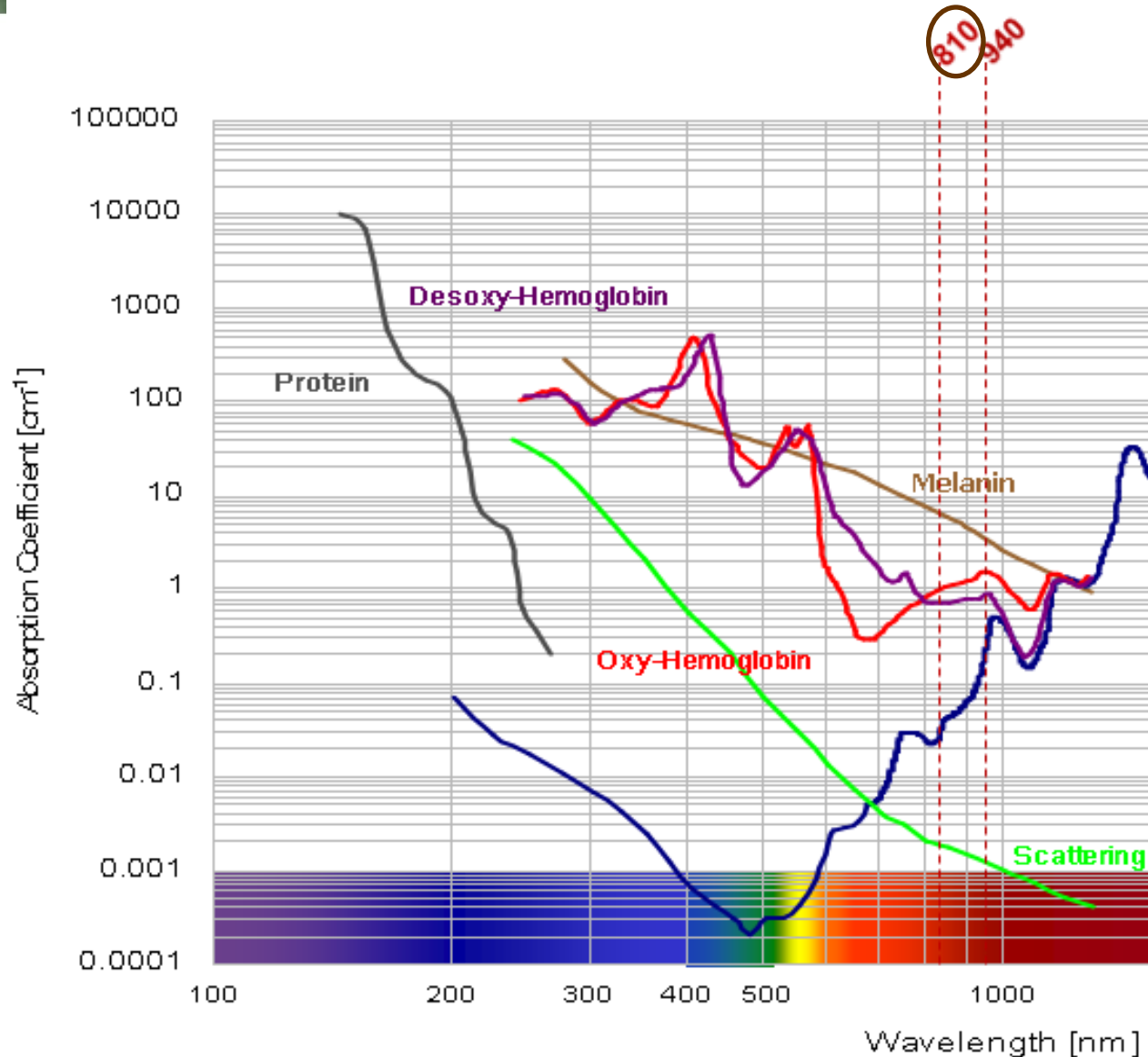


HIGH ABSORPTION
in (Eu)melanin:

By absorption of the laser light the hair is heated and damages the cells in the surrounding, which are responsible for hair regrowth. (Cooling of Epidermis necessary, especially for dark skin, which also contains melanin!!)

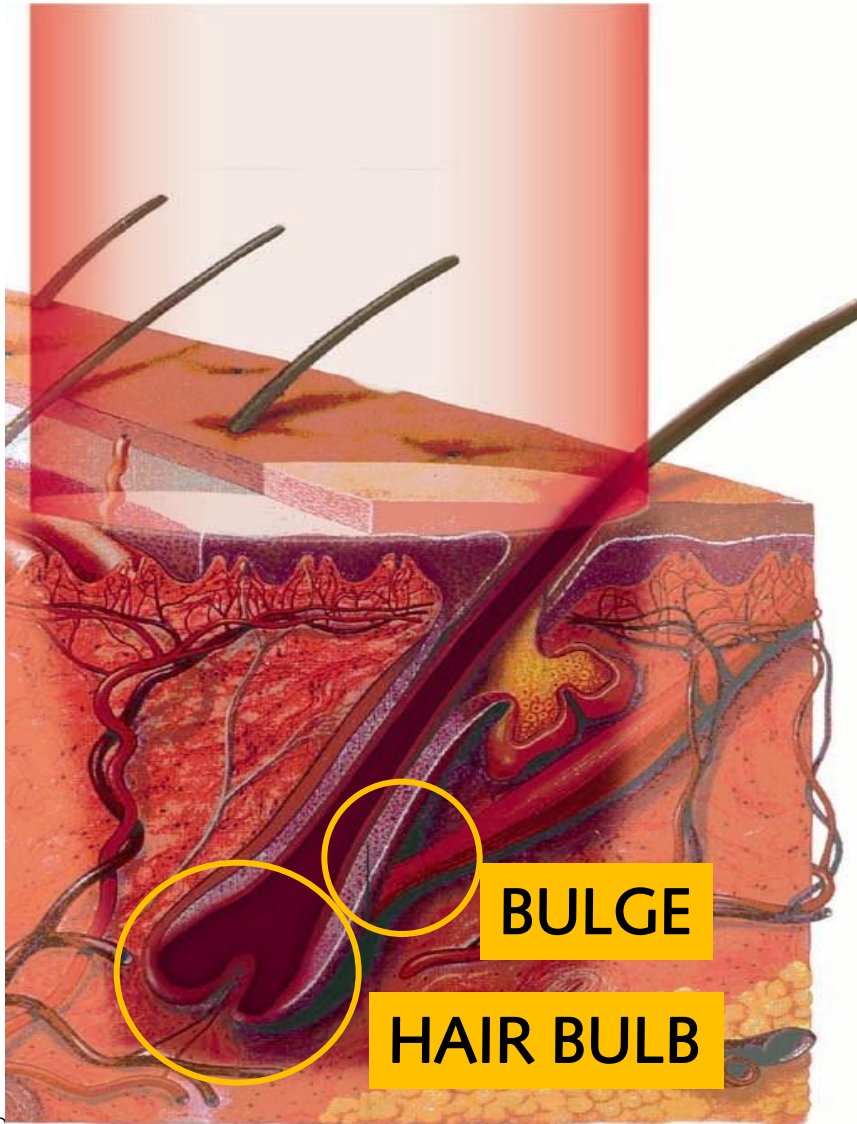
LOWER ABSORPTION
in blood and water:

The blood and the skin (which contains water) absorb a bit light only and is therefore not much heated. That's why the risk of side effects is low.





THE ASCLEPION EFFECT



Anatomy of the Hair

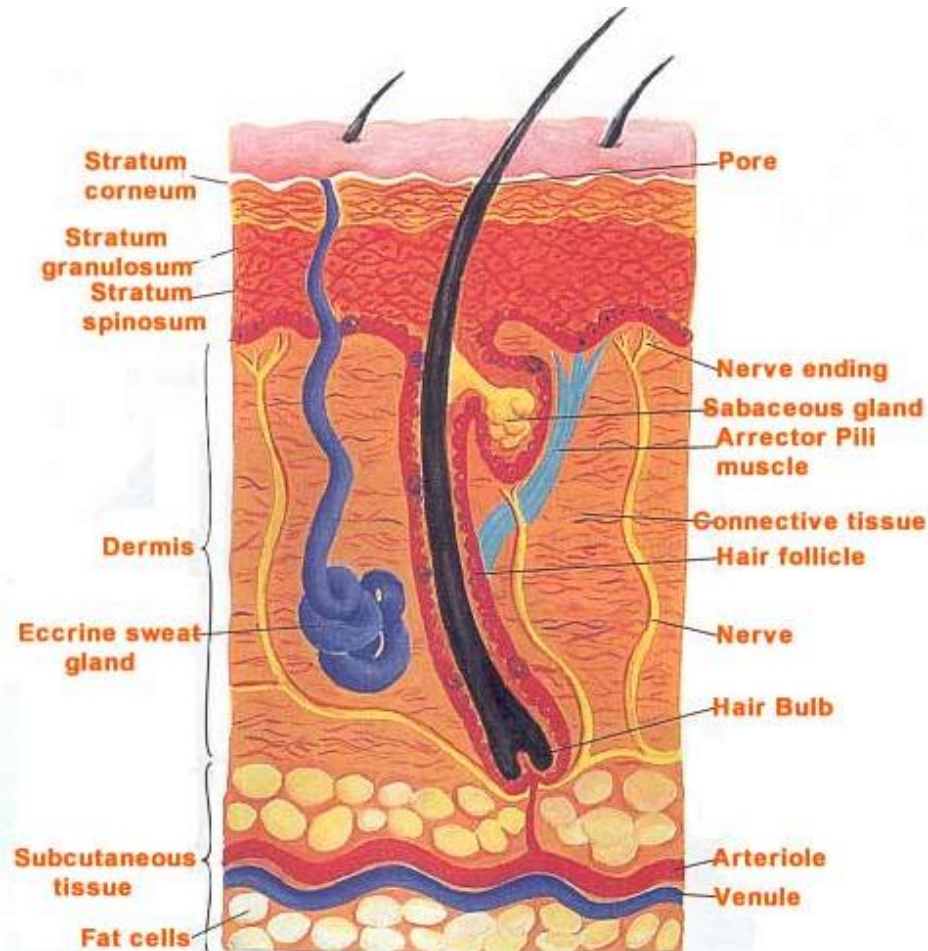
Skin structures, which are responsible for hair growth:

- **Bulge:**
Germinative follicle cells of the outer root sheath
- **Hair Bulb:**
Matrix cells contain Melanin



THE ASCLEPION EFFECT

MedioStar NeXT – the workhorse for hair removal



- Selective light absorption in Melanin
- Conversion into heat in shaft and bulb
- Thermal damage of hair roots and all structure responsible for hair growth
- Leaving epidermis intact
- Coagulation of micro – vessels feeding roots



THE ASCLEPION EFFECT

Hair Growth Cycle

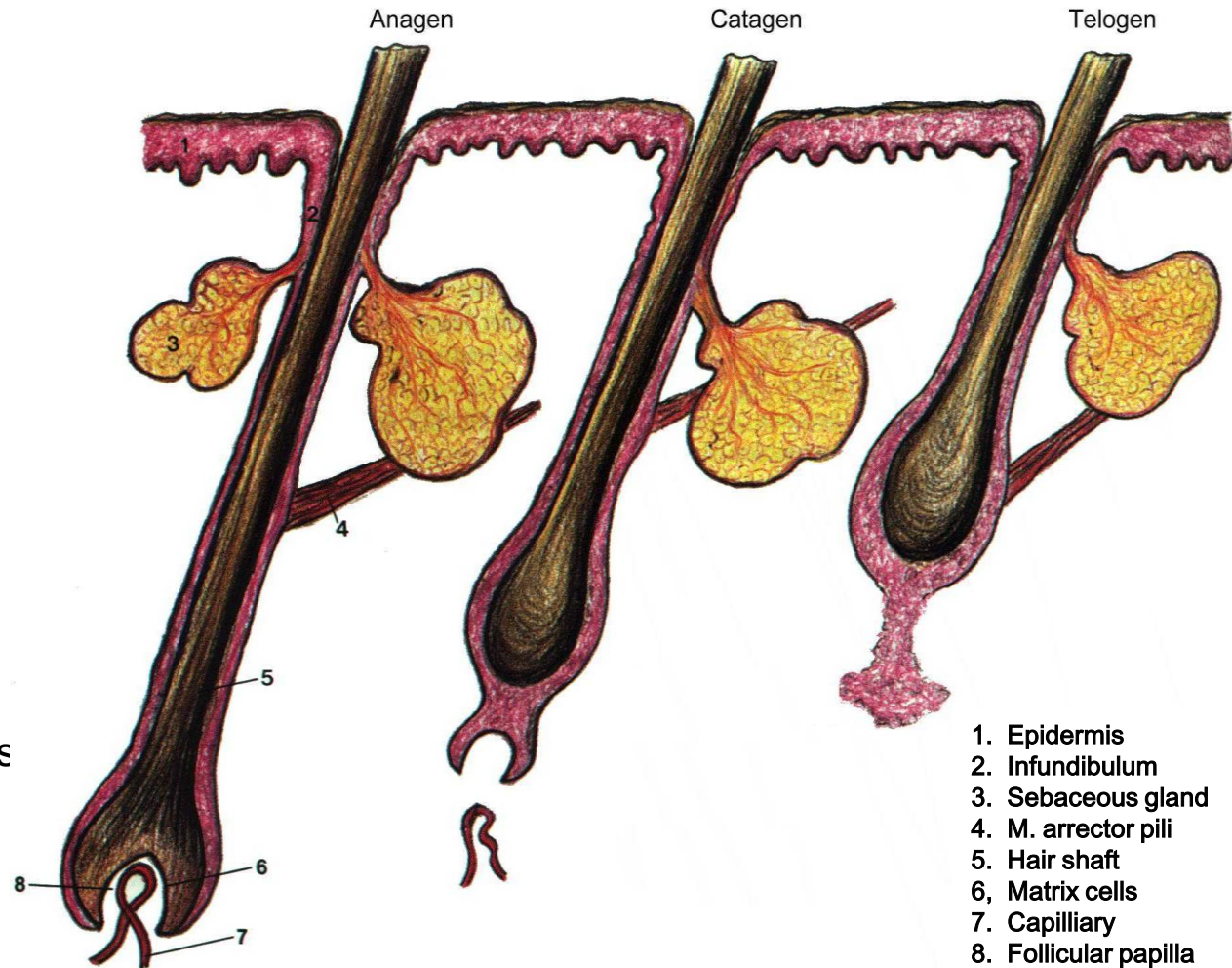
- Hair is sensitive to laser treatment in the anagen phase only

- In human beings the hair cycle is NOT synchronized – different hair follicles are in different phases:

Multiple treatments are necessary

- Duration of the phases is dependent on location:

interval between treatments
ca. 4 weeks for face
ca. 6-8 weeks for body





THE ASCLEPION EFFECT

Clinical results:

- ⇒ E.-J. Fiskerstrand, Trondheim/Norway (LasersSurgMed 2003;32:399-404):
 - 34 patients, skin type II – III, 3 treatments,
 - light brown to dark hair, upper lip + 3 patients Bikini line
 - side by side comparison LightSheer (9x9) vs. MeDioStarPRO(12mm),
 - Fluence 35J/cm²
 - efficiency the same (after 3 trx reduction of 49% MeDioStar vs. 48% LightSheer)
 - no pigment changes, no scars
 - less erythema and burned hair with MeDioStar

- ⇒ A.J. Nemeth, Clearwater/Florida (presentation at EADV 2004):
 - 200 patients, 978 sessions in total
 - Fluence 10 – 36J/cm², 12mm spot size
 - Skin type I – VI, 84% II – III
 - 3-8 trx (Ø 4,9)
 - 64% hair reduction after 3rd treatment
 - after 5 treatments (0,5%) transient hyperpigmentation

- ⇒ N.S. Sadick, New York/USA (DermSurg 2003;29:30-34):
 - 24 patients, skin type I – IV, 3 trx
 - Axilla, Bikini line, hair colour: light – dark brown
 - 70% clearing 6 months after 3rd treatment
 - 1 transient hyperpigmentation lasting 2 weeks



THE ASCLEPION EFFECT

⇒ T. Ilknur, Uni Izmir/Türkei (LasersMedScience 2010; Okt.):

31 patients, skin type II – IV, Axilla

comparison of biophysical skin properties before/after 1 treatment vs. untreated
efficiency: 48% hair reduction 6 weeks after 1 treatment,

statistical significant reudktion of hair thickness

erythema index different up to 2 weeks after treatment

no change of: Melanin index, water content of skin, pH-value, secretion of sebum

⇒ A. Steps (2011):

Comparison of MeDioStar NeXT to MeDioStar miXT

12 patients, skin type I – III, Axilla

MeDioStar NeXT: 49% hair reduction after 3 trx (17 – 91%)

result of MeDioStar NeXT a bit better compared to MeDioStar miXT

Application · Hair Removal

• Vascular Treatments • Acne • Rejuvenation

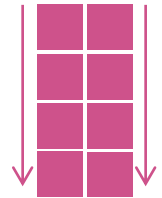


THE ASCLEPION EFFECT

Diode /	
Mode	Basic ---
Spot	STD 14 x 10 mm
Fluence	23 J/cm ²
Speed	0.5 Hz

BASIC-Mode/ For standard treatments easy and fast

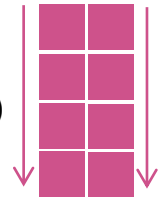
- To set FLUENCE (energy density) and SPEED
- In this mode always double pulse with shortest possible pulse duration (automatically)
- Normally 1 pass per area and session



Diode /	
Mode	Professional ---
Spot	STD 14 x 10 mm
Fluence	5 J/cm ²
Speed	0.5 Hz
Time	40 ms
Pulse	

PROFESSIONAL-Mode/ For individual treatments

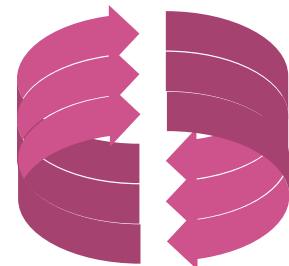
- To set FLUENCE, SPEED and TIME (pulse duration)
- In this mode you can choose between double pulse (more safe) and single pulse (more effective for thin hair)
- Normally 1 pass per area and session



Diode /	
Mode	Smooth Pulse ---
Spot	STD 14 x 10 mm
Fluence	5 J/cm ²
Speed	6.0 Hz

SMOOTH PULSE-Mode/ Fast, effective and more pleasant for large areas

- To set low FLUENCE and high SPEED (up to 12Hz and 12J/cm²)
- In this mode always single pulse with shortest possible pulse duration (automatically)
- Multiple passes per area and session are necessary !!





THE ASCLEPION EFFECT

Clinical Results



Axilla





THE ASCLEPION EFFECT

Clinical Results



Upper lip





THE ASCLEPION EFFECT

Clinical Results



Facial hair of a woman



after 6 trx



THE ASCLEPION EFFECT

Clinical Results



Back

CAVE: never treat a tattoo!! (damages the tattoo and can cause scarring)



THE ASCLEPION EFFECT

Clinical Results



Back



Application . Hair Removal • Vascular Treatments • Acne • Rejuvenation



THE ASCLEPION EFFECT

Clinical Results



Bikini line





THE ASCLEPION EFFECT

Clinical Results – comparison

After 3 trx



MeDioStar **miXT**

35 J/cm² @ 1,5 Hz

MeDioStar **NeXT**

35 J/cm² @ 1,5 Hz

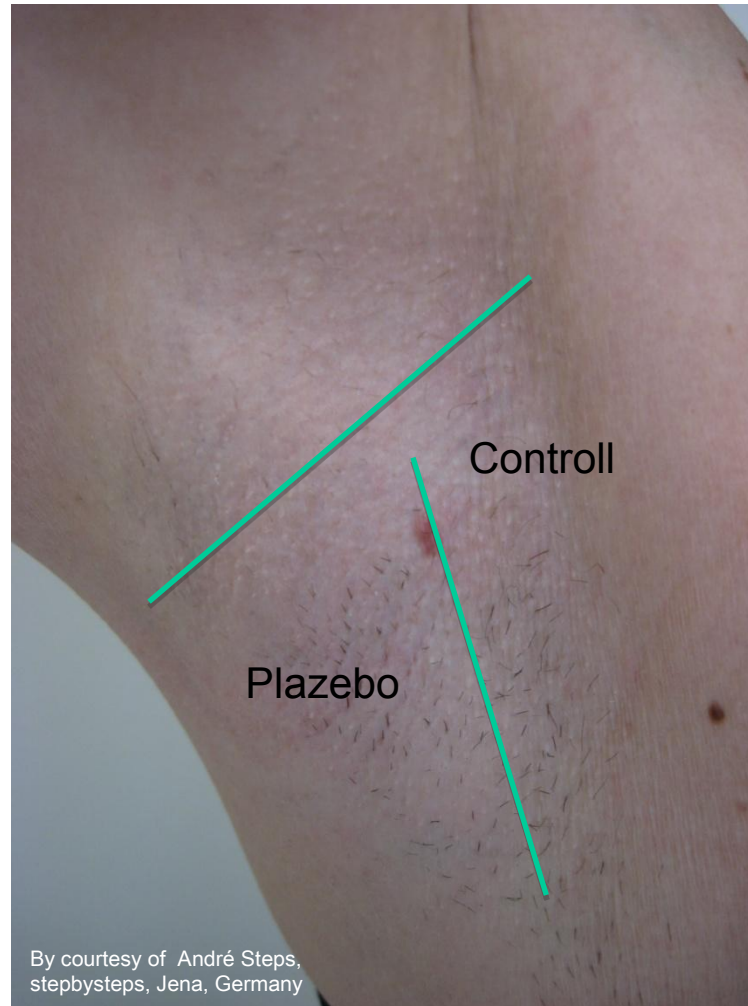
By courtesy of André Steps,
stepbysteps, Jena, Germany



THE ASCLEPION EFFECT

Clinical Results – comparison

MeDioStar NeXT
SmoothPulse-Mode
10 J/cm²
@ 20ms
@ 9,4 Hz



By courtesy of André Steps,
stepbysteps, Jena, Germany



THE ASCLEPION EFFECT

Skin reaction directly after treatment (end-point)

Normal- redness



highest level – perifollicular edema
(to see specially in case of thick, dark hair
CAUTION: keep optics clean!)

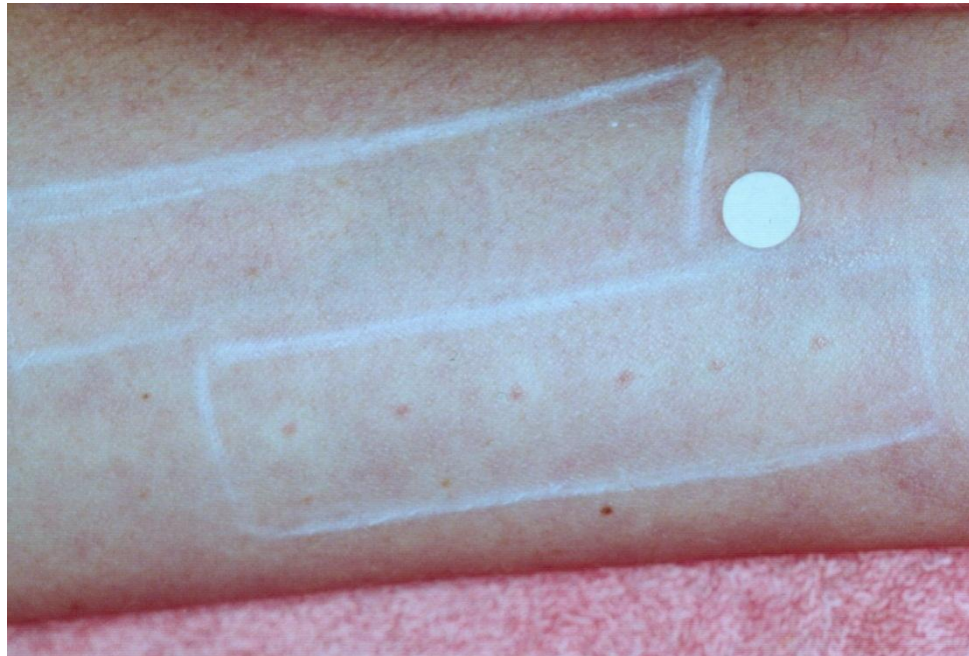




THE ASCLEPION EFFECT

Side effects directly after treatment

upper line ok



lower line
dirt at optics
(which is in contact
with skin)



THE ASCLEPION EFFECT

Indications

- Ectatic vessels with diameter ca. 0.5 – 2mm (e.g. medium size leg veins)
- Hemangiomas
- Venous Lake
- Spider Naevi
- Lymphangiomas
- Granuloma pyogenicum



Application • Hair Removal • Vascular Treatments • Acne • Rejuvenation

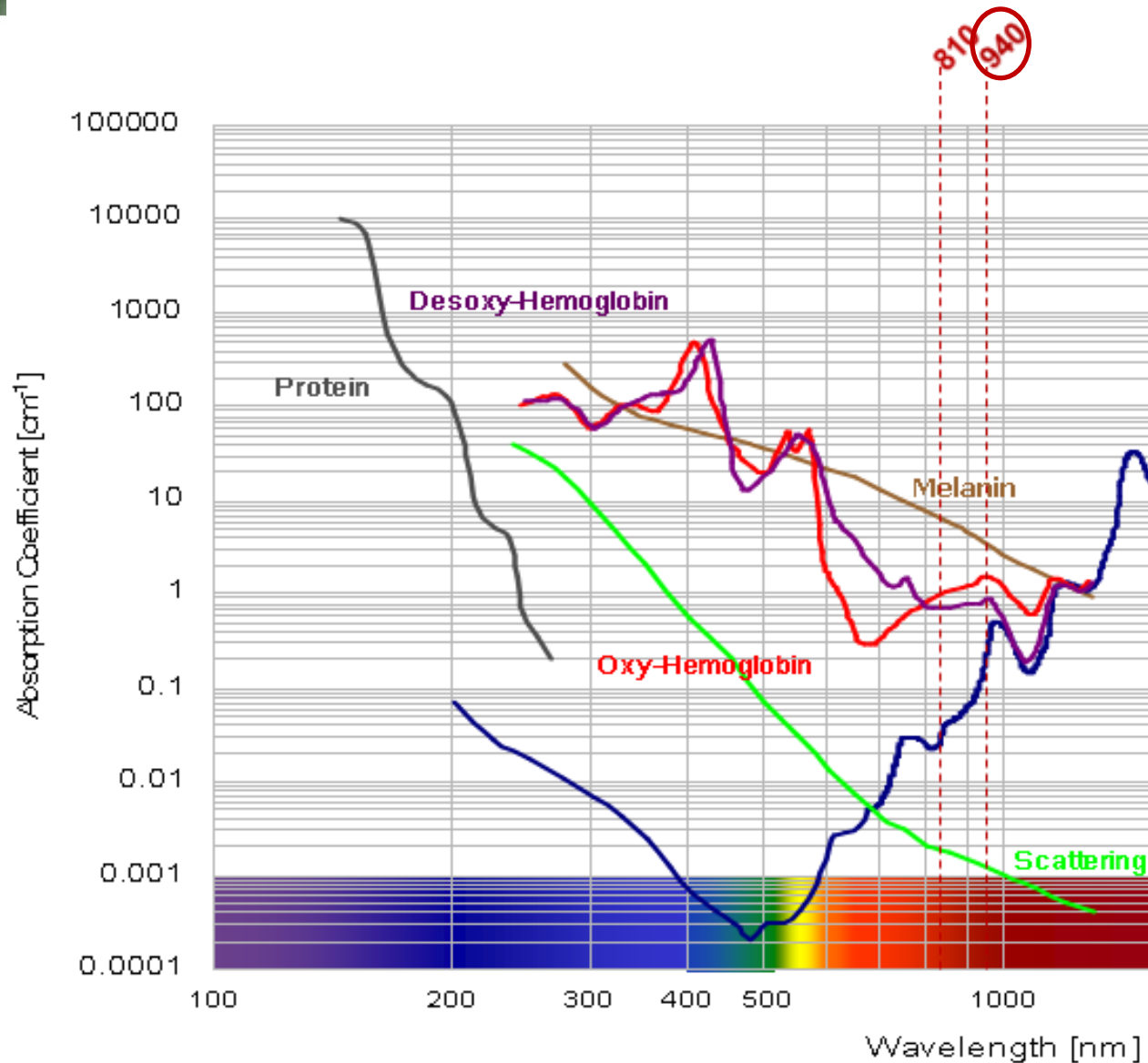


HIGHER ABSORPTION in Blood:

By absorption of the laser light the blood in the vessel is heated and damages the tunica intima (disappearing of vessel or is coagulated sometimes (slight darkening of the vessel)).

The damaged tissue is resorbed by the lymphatic system and this takes some time.

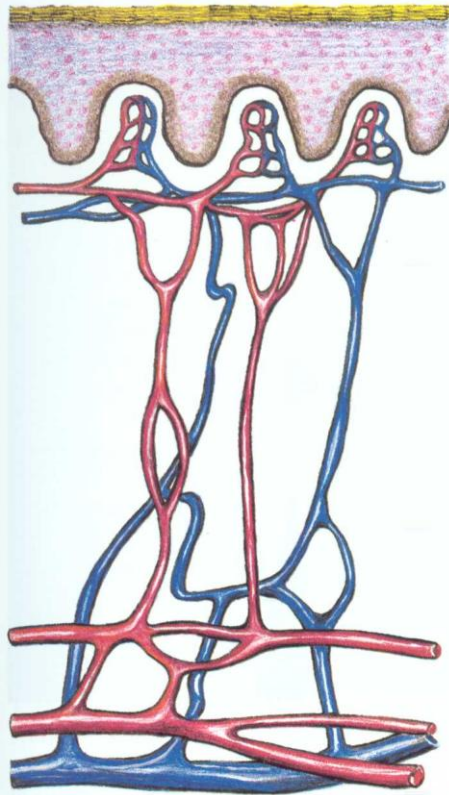
That's why sometimes one sees the successful treated vessel for some weeks – check the blood flow by pressure with finger.





THE ASCLEPION EFFECT

Anatomy of the Blood Vessels



nm	KTP	Dye	Diode	Nd:YAG
	532	577/585	940	1064

Port wine stains
Telangiectasia

Haemangioma

Spider naevi

Venous lakes

Fine reticular veins

Large reticular veins



Clinical results

⇒ V. Tsepkenko, Odessa/Ukraine (2003):

106 patients, vessel size up to 3mm

Fluence 80 – 160 J/cm², 6 mm spot size

75% of vessels disappeared, 20% clearly better, 4% better, 1% unsatisfying

⇒ K. Kykalova, Prague/Czechia

24 patients, vessel size 1 up to 4mm

Fluence 90-100 J/cm²

(higher values used in the beginning, but same results with less side effects with lower Fluence and overlap up to 2 pulses at the same spot area)

2-5 treatments

results up to Ø 2mm: 70% disappearance, Ø 2-3mm : 50%, Ø 4mm: 30% with 3 trx

⇒ A. Steps, Jena/Germany (2011):

21 patients

comparison of MeDioStar NeXT to MeDioStar miXT

shorter pulse duration with same Fluence possible

less side effects with MeDioStar NeXT

Application • Hair Removal • **Vascular Treatments** • Acne • Rejuvenation



THE ASCLEPION EFFECT

Clinical Results



Leg Veins - before and 3 months after 1 treatment, 6mm, 80-100 J/cm², non-contact



Application • Hair Removal • **Vascular Treatments** • Acne • Rejuvenation



THE ASCLEPION EFFECT

Clinical Results



Telangiectasia - before and 6 weeks after, 90 J/cm², 60ms, 6mm, non-contact



MDS NeXT 100 0412 EN

By courtesy of Dr. Paul Wood, Proderma, Bad Homburg, Germany

Application • Hair Removal • **Vascular Treatments** • Acne • Rejuvenation



THE ASCLEPION EFFECT

Clinical Results



Spider Naevi - 90 J/cm², 60ms, 6mm, non-contact



Application • Hair Removal • **Vascular Treatments** • Acne • Rejuvenation



THE ASCLEPION EFFECT

Clinical Results



Venous lake - before and 3 months after 1 treatment, 6mm, 80J/cm², 75ms, 3 pulses, non-contact



MDS NeXT 100 0412 EN

By courtesy of Dr. Paul Wood, Proderma, Bad Homburg, Germany



THE ASCLEPION EFFECT

Clinical Results



Lymphangiom - before and 2 months after, 6mm, 90J/cm² non-contact



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THE ASCLEPION EFFECT

Clinical Results



Angiofibrom - before and 3 months after, 6mm, 90 J/cm², 75ms, non-contact



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By courtesy of Dr. Paul Wood, Proderma, Bad Homburg, Germany



THE ASCLEPION EFFECT

Clinical Results

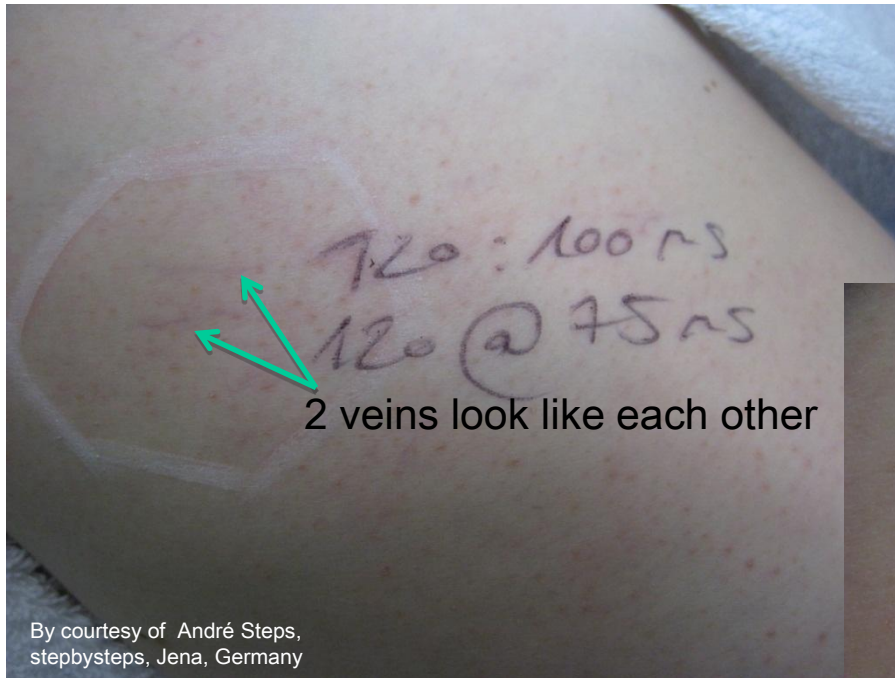


Hämangiom (tuberous) - before and 6 weeks and 3 months after, 6mm, 90J/cm² 75ms, non-contact

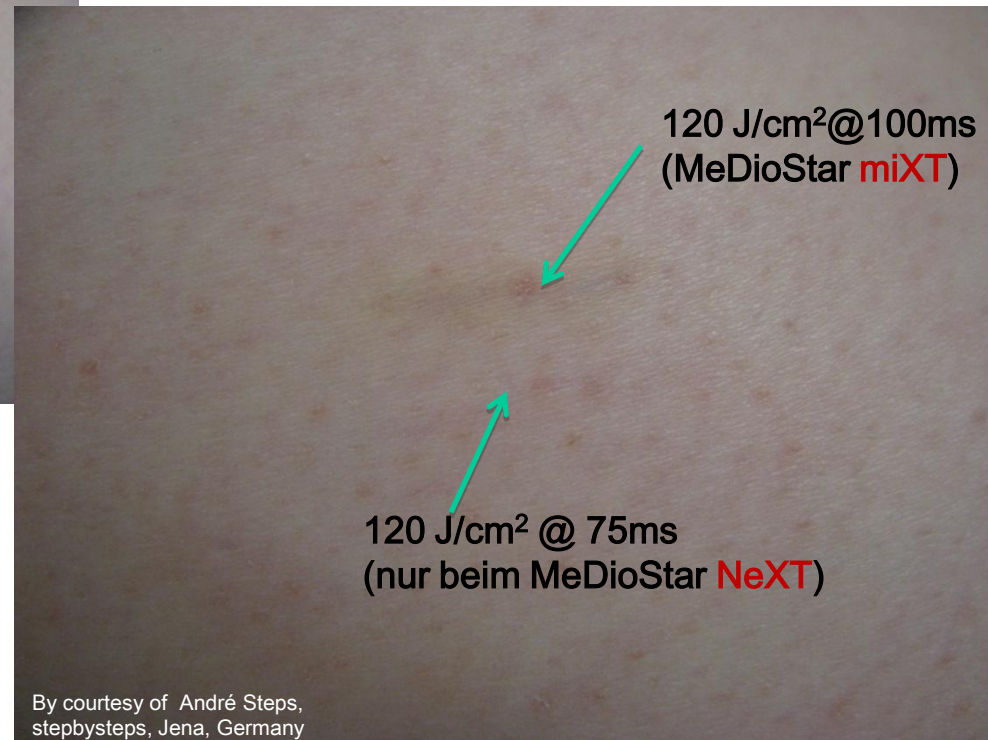


THE ASCLEPION EFFECT

Clinical Results – comparison



2 weeks after





THE ASCLEPION EFFECT

Skin reaction directly after treatment (end-point)

2 min. after



10 min. after





THE ASCLEPION EFFECT

Indications

- Acne vulgaris
- Acne inversa



Treatment procedure like Hair Removal
but longer pulses (more general heating of skin), 3-4 passes
4-5 treatments with 1 week interval

Application • Hair Removal • Vascular Treatments • **Acne** • Rejuvenation

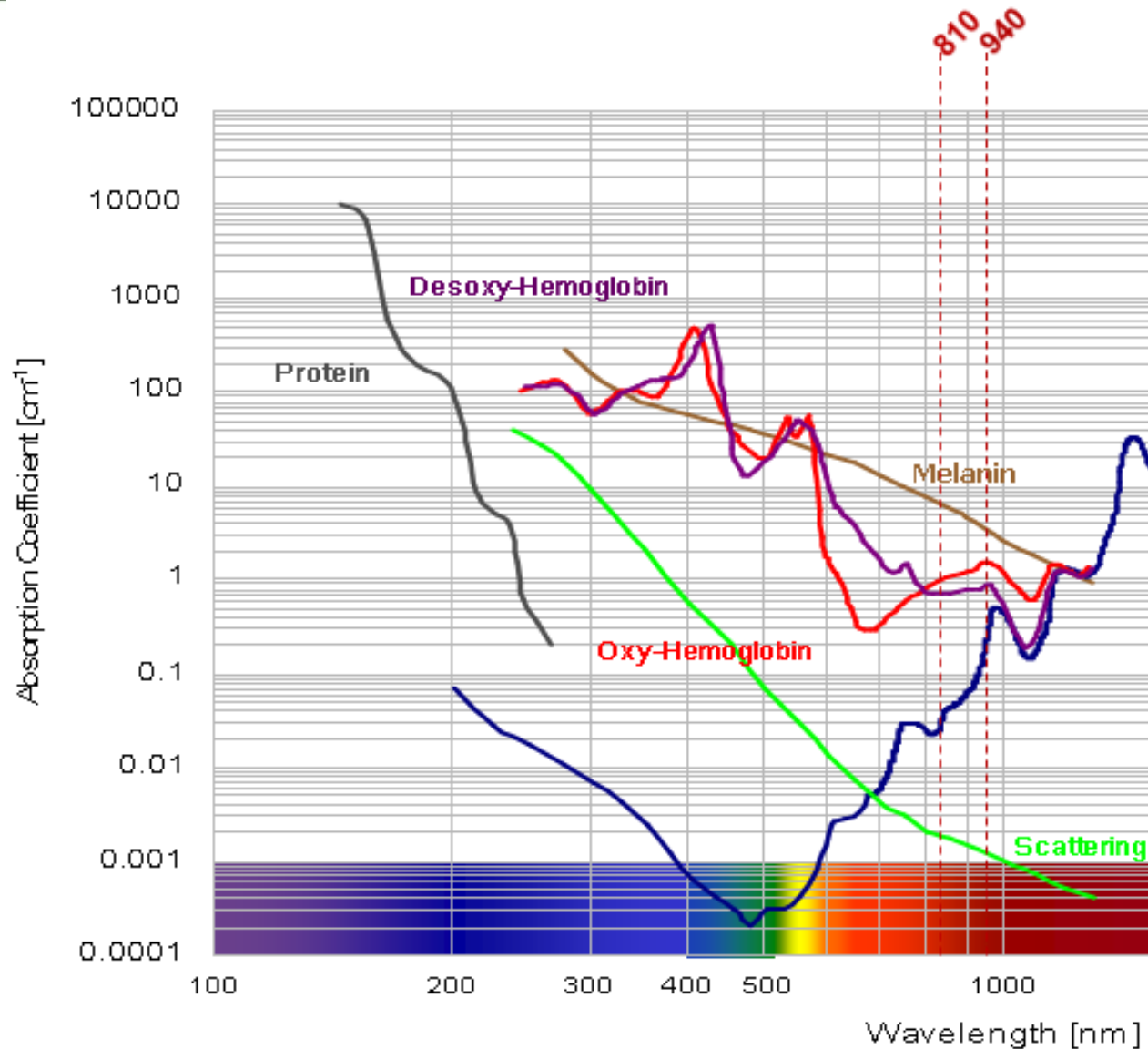


RATHER HIGH ABSORPTION
in Blood and Water:

By absorption of the laser light
the blood of the inflamed area
as well as the water of the skin
is heated and affects the
infected sebaceous glands.

Because of less specific
absorption (vs. hair and
medium size blood vessels)
multiple passes are necessary.

CAUTION
with treatments of male beard:
In areas with hair it will be
removed !!





Clinical Results of Acne Inversa Treatments

⇒ C. Passos-Pereira (Dermaforum Sept. 2003):

Results of treatments of Acne inversa

20 patients

Clinical presentation: recurrent formation of abscess up to monthly surgery under general anesthetic

Fluence 30 – 40 J/cm², 12 mm spot size, treatment like hair removal
all patients respond to the treatment

the treatment should be done best in the early stage (without scars)
in case of advanced course:

clear improvement of the findings and of the general condition

dispensation with primarily radical surgery

restriction to minimal procedures, which improves the situation of the patient
as a secondary finding reduction of odor formation

⇒ Scientific study is running with 60 patients in Bochum, Germany



THE ASCLEPION EFFECT

Clinical Results



A:
Before laser treatment
(HS-score 15)

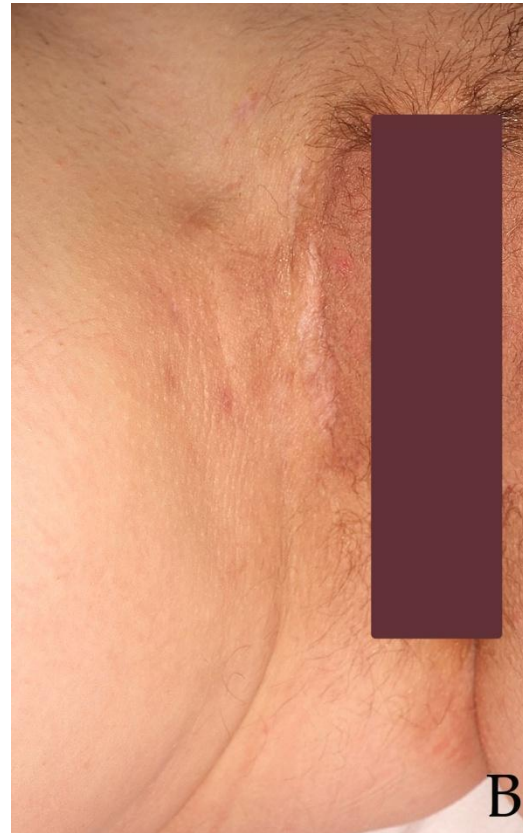
B:
After 7 laser treatments
(HS-score 2)

Acne inversa



THE ASCLEPION EFFECT

Clinical Results



A:
Before laser treatment
(HS-score 14)

B:
After 7 laser treatments
(HS-score 3)

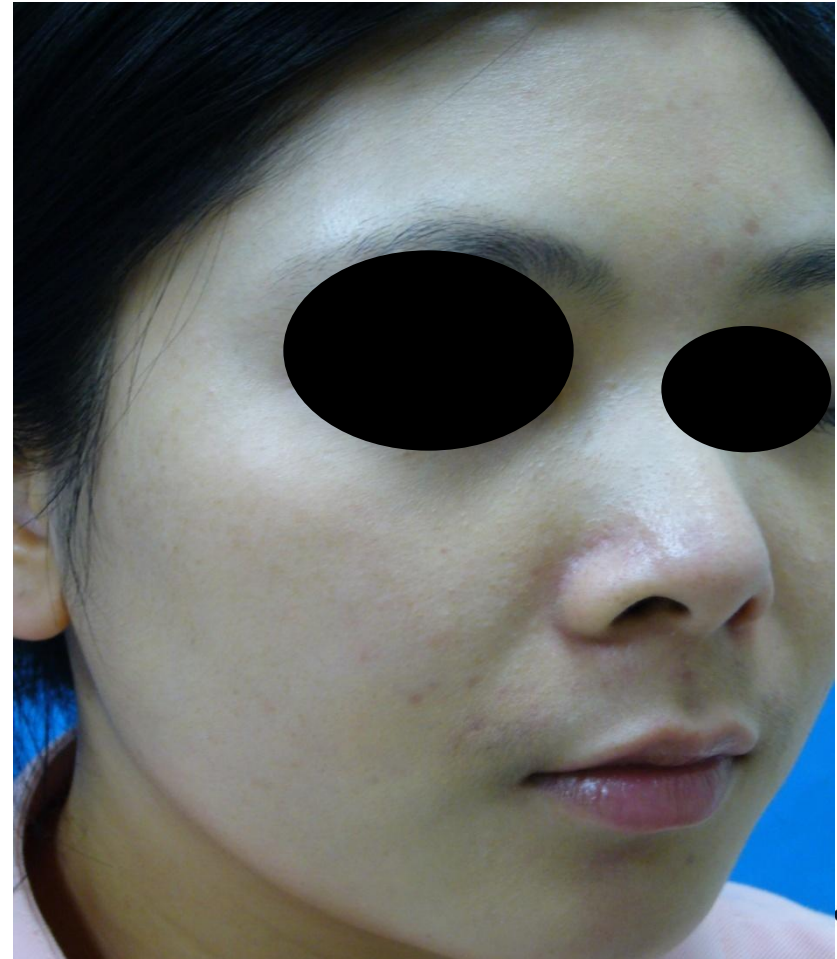
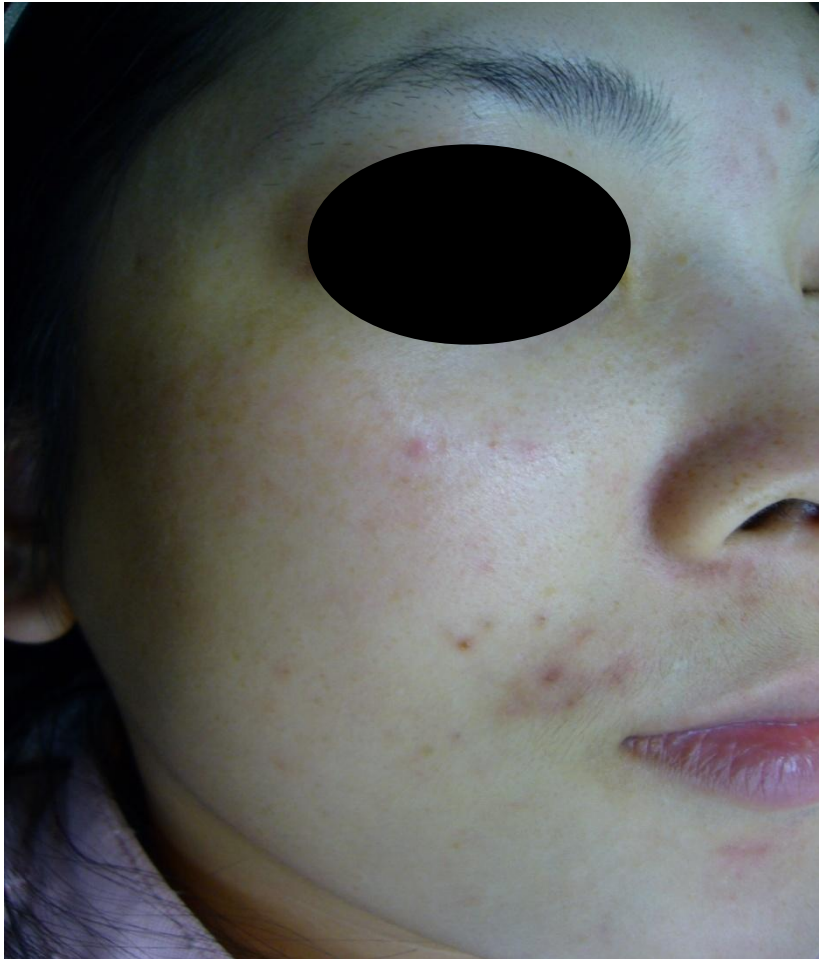
Acne inversa

Application • Hair Removal • Vascular Treatments • **Acne** • Rejuvenation



THE ASCLEPION EFFECT

Clinical Results



Acne vulgaris - before and 2 weeks after, 25 J/cm², 150 ms, single pulse

Asclepiion
Laser Technologies

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By courtesy of Taiwan

Application • Hair Removal • Vascular Treatments • **Acne** • Rejuvenation



THE ASCLEPION EFFECT

Clinical Results



Acne vulgaris - before and 2 weeks after, 28 J/cm², 175 ms, single pulse

MDS NeXT 100 0412 EN

Asclepion
Laser Technologies

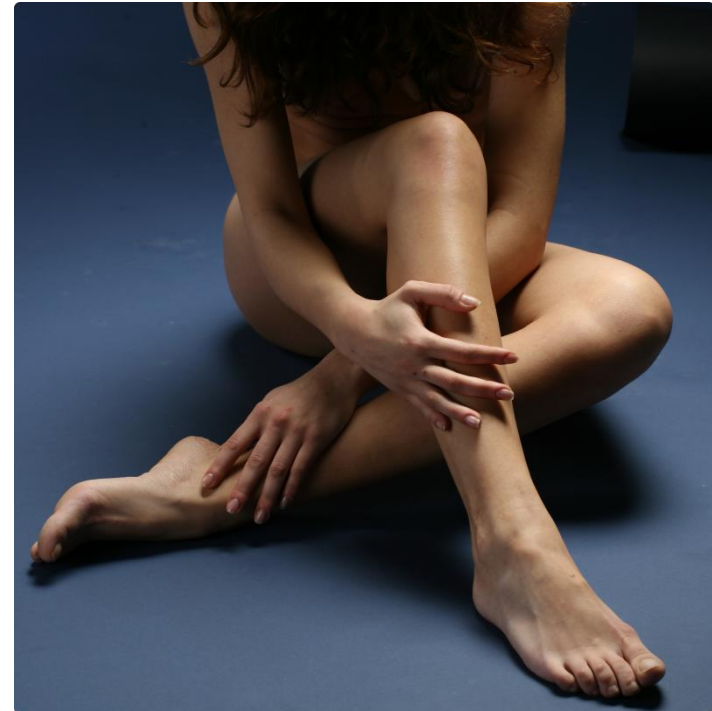
By courtesy of Taiwan



Indications

- Improvement of fine wrinkles
- Improvement of pore size
- Improvement of texture
- Skin whitening
- Improvement of darker benign age spots

Treatment procedure like Hair Removal
but longer pulses (more general heating of skin), 3 passes
3 treatments with 1 month interval



Application • Hair Removal • Vascular Treatments • Acne • Rejuvenation



THE ASCLEPION EFFECT

Clinical Results

Wrinkles, pore size, texture, spots

⇒ Dr. Dai et al., Taipei/Taiwan: (2008)

Objective measurement of improvement of skin quality after treatment for rejuvenation

Fluence 30 – 40 J/cm², pulse duration 300 – 400ms, 12 mm spot size, 3 passes, 1 treatment
measurement of wrinkles, pore size, texture and age spots in % before/after 1 treatment
improvement of texture: 22-31%, wrinkles: 33-39%, pore size 10-19%, spots:15%

Lentigines – vascular spot, non-contact. no skin cooling before treatment

⇒ S. McCoy, Adelaide/Australia:

12 patients with many lentigines

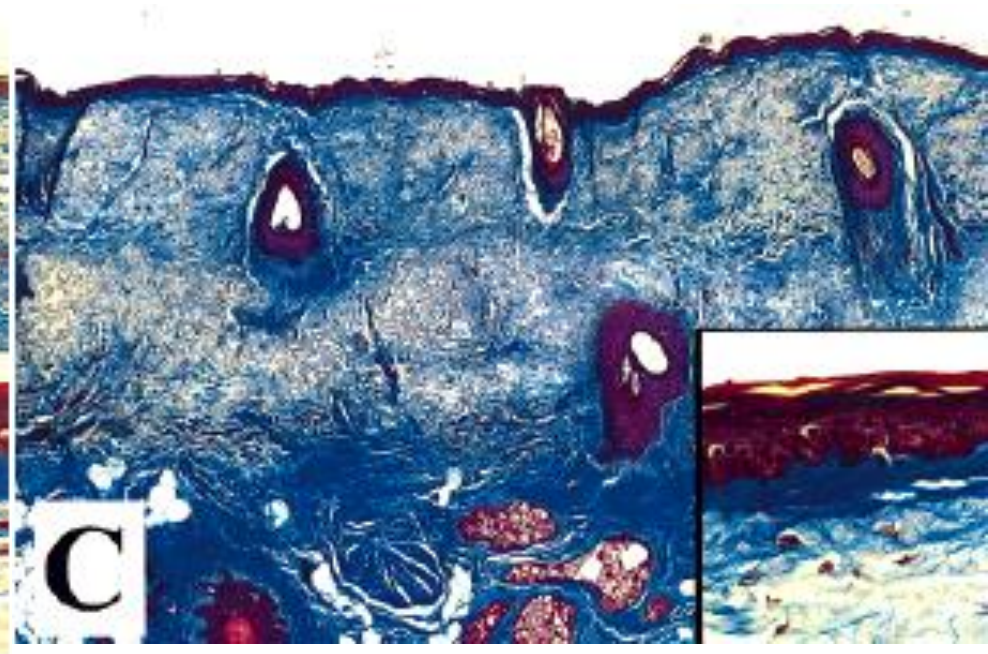
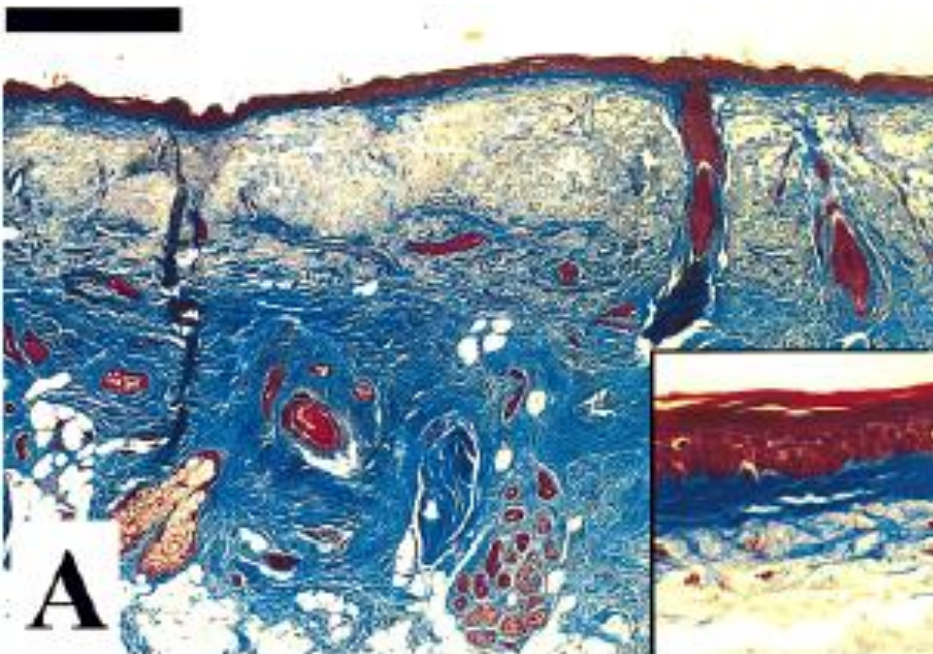
Fluence 25 – 50 J/cm², spot size first 12 mm, change to 6mm (shorter pulse duration)
result less dependent on Fluence, but on color of lentigines (the darker the better)

Application • Hair Removal • Vascular Treatments • Acne • Rejuvenation



THE ASCLEPION EFFECT

Results 980 nm histology



before

after

- Zone of denaturated collagen underneath epithelium
- Epithelium is intact

Application • Hair Removal • Vascular Treatments • Acne • Rejuvenation



THE ASCLEPION EFFECT



Reduction of pore sizes, skin whitening

Application • Hair Removal • Vascular Treatments • Acne • Rejuvenation



THE ASCLEPION EFFECT

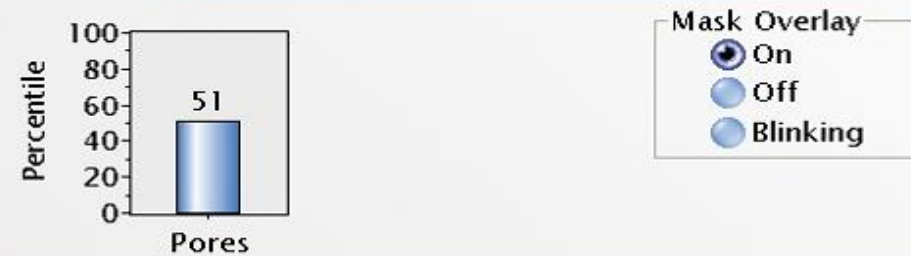
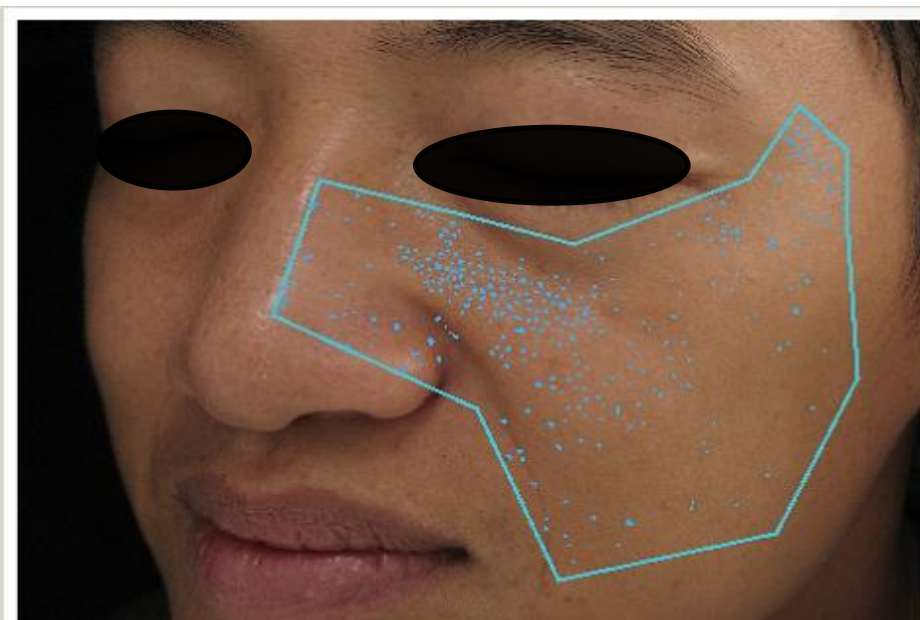


150 ms, single impulse, 25 J/cm², 14 days after treatment

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THE ASCLEPION EFFECT



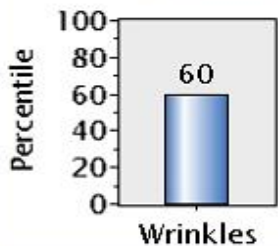
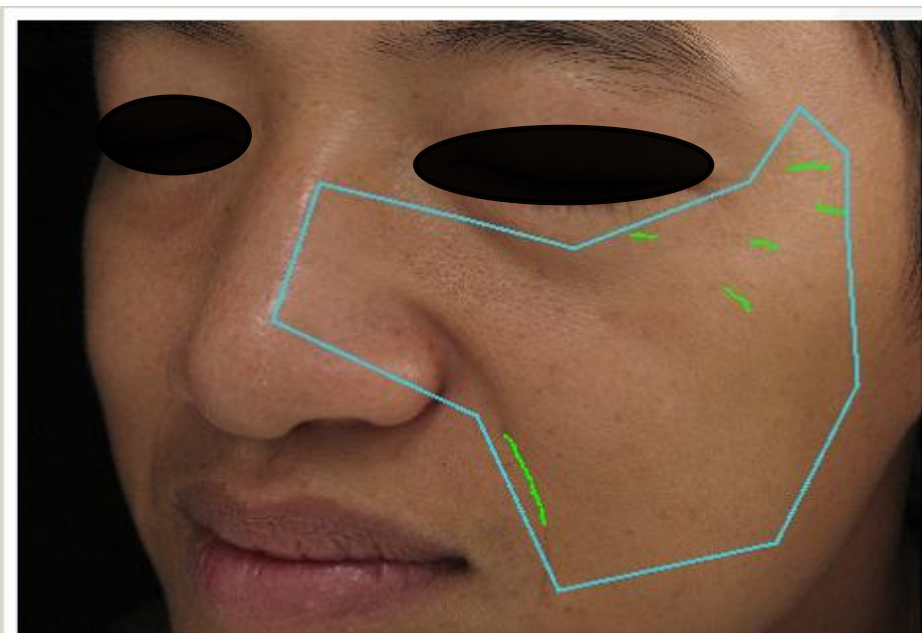
pore size improvement (32 to 51), immediately after 1st treatment measured with Canfield Visia system (100 equals best condition)



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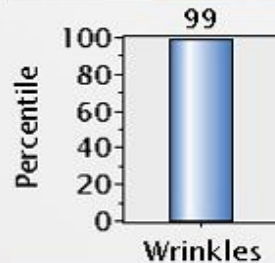
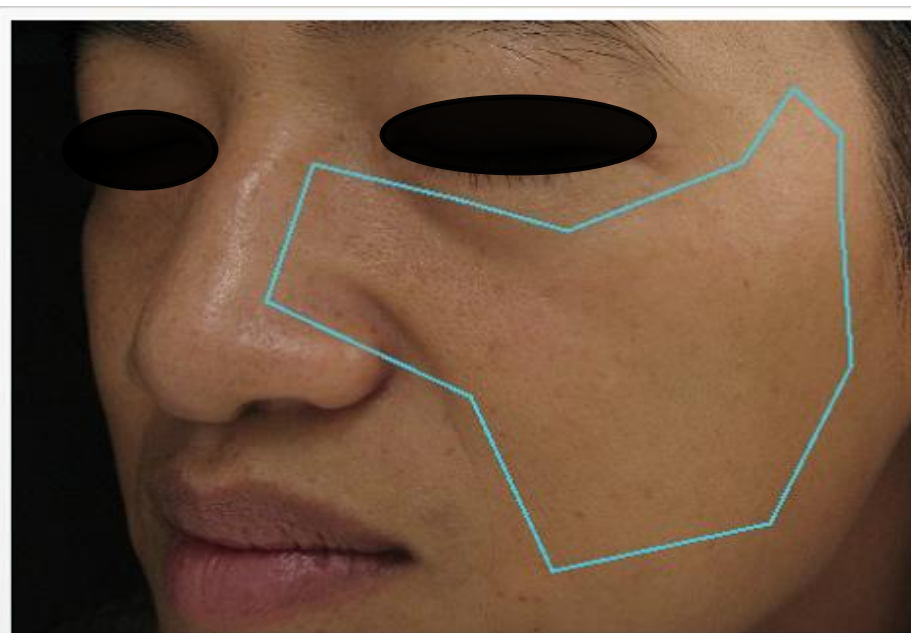


THE ASCLEPION EFFECT



Mask Overlay

- On
- Off
- Blinking



Mask Overlay

- On
- Off
- Blinking

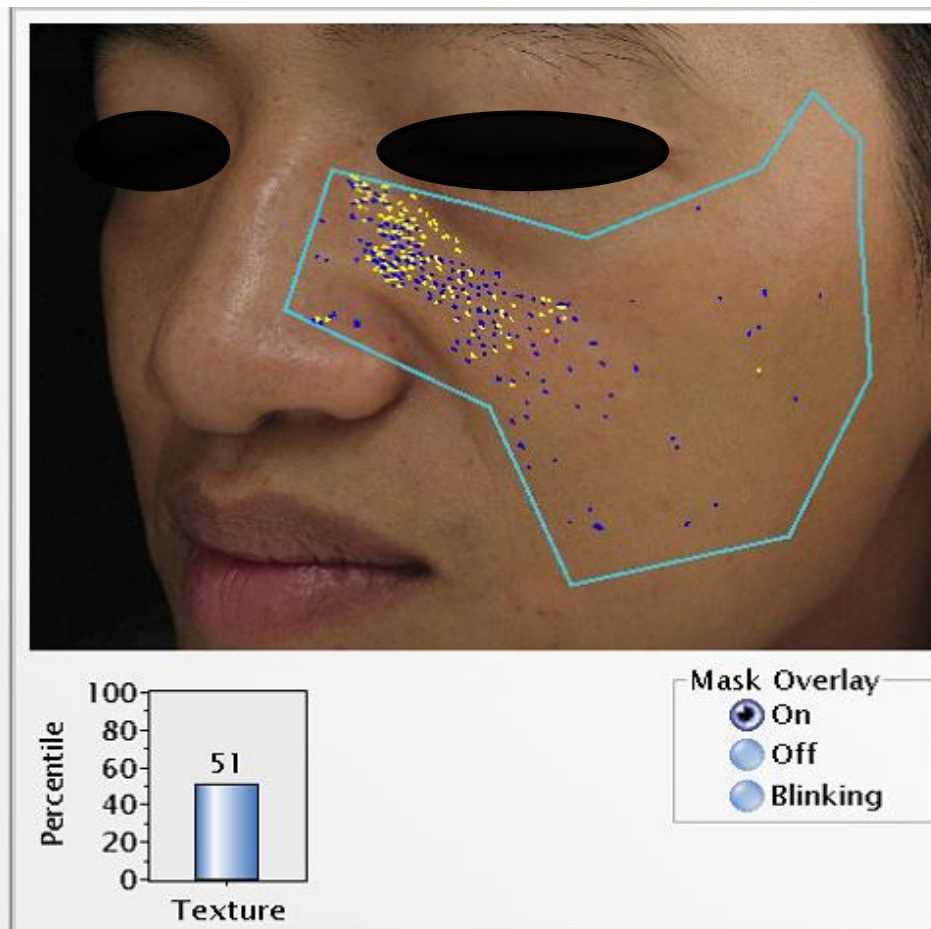
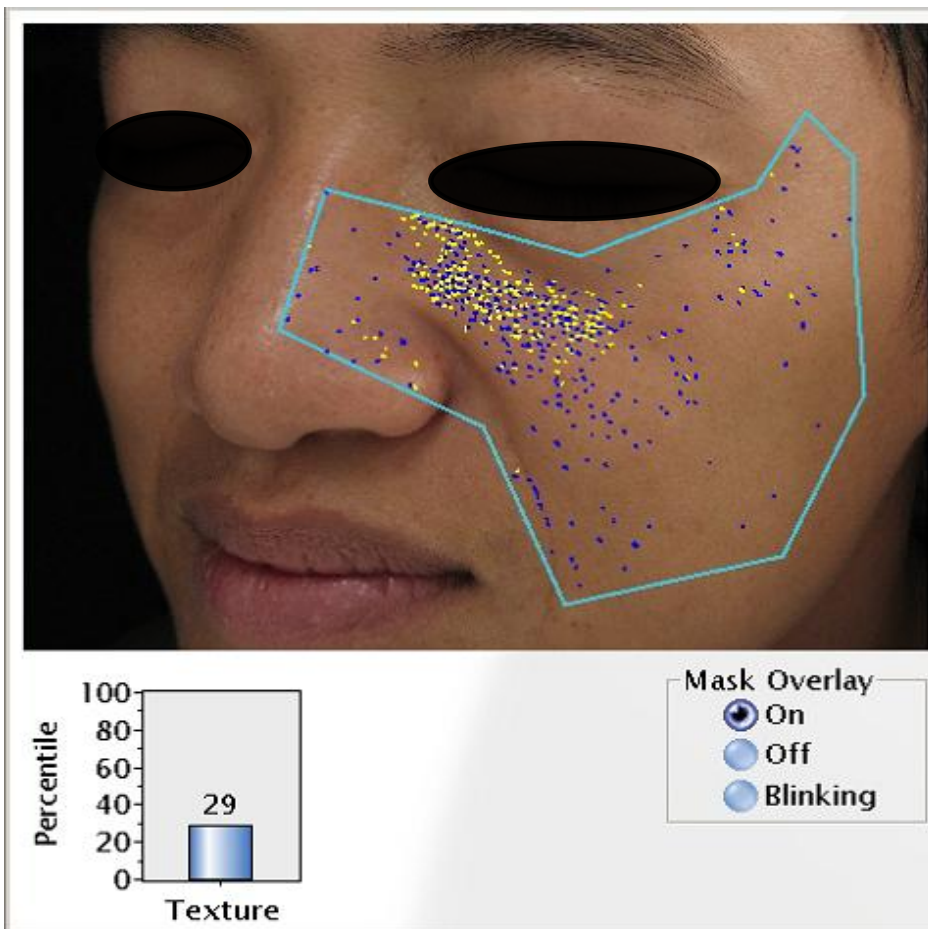
wrinkle improvement (60 to 99), immediately after 1st treatment measured with Canfield Visia system (100 equals best condition)



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THE ASCLEPION EFFECT



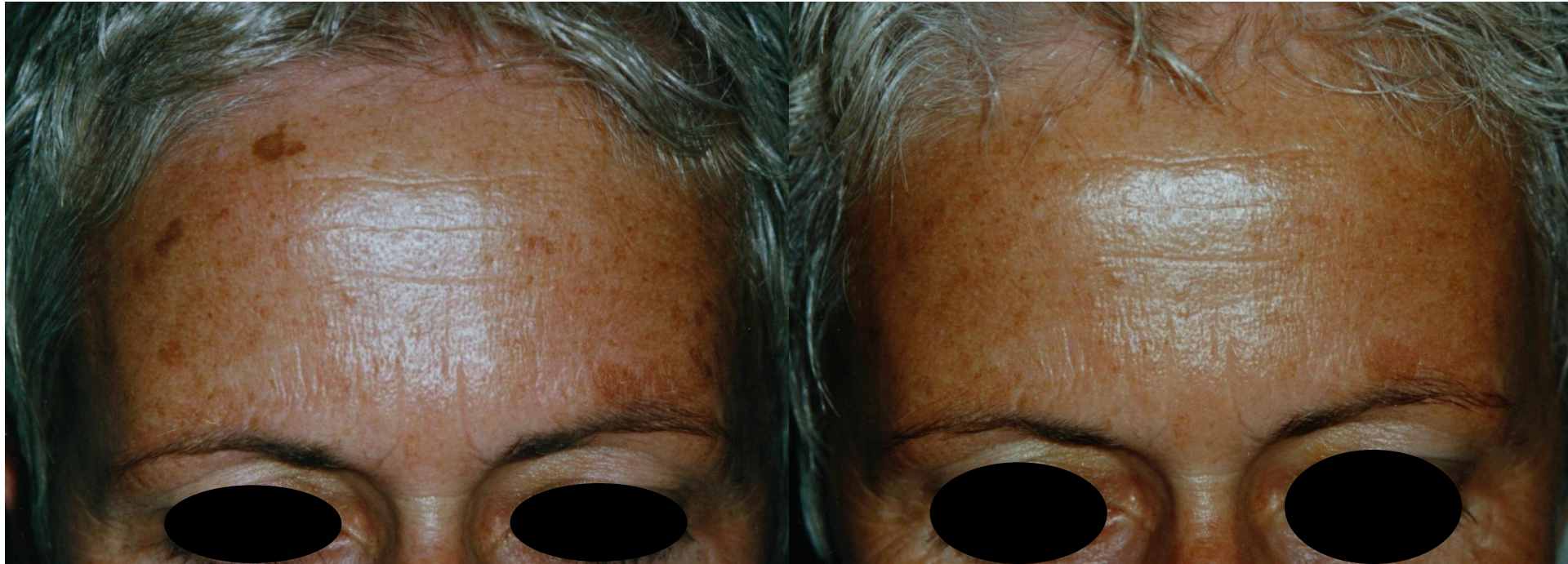
skin texture improvement (29 to 51), immediately after 1st treatment measured with Canfield Visia system (100 equals best condition)



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THE ASCLEPION EFFECT



Lentigines / seborrheic Keratosis - before and 6 weeks after, 6mm, 35J/cm² 20ms, non-contact

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THE ASCLEPION EFFECT



Lentigines - before



2 weeks



6 weeks after

Parameter: 6mm, 30J/cm² 17ms, non-contact

