François Michel
Vendredi 13 mars
SFPD
Angers

QUOI DE NEUF EN LASERS : BIBLIOGRAPHIE ET UTILISATION PRATIQUE

La ville de Thiers

BIBLIOGRAPHIE

- Pénétration transcutanée
- Les cicatrices
- Les mycoses unguéales
- Le psoriasis unguéal
- Les angiomes
- Naevus de Otta
- Mélasma, vitiligo
- Les carcinomes
- Acné
- Hailey-Hailey
- acné
- Esthétique
- Dermatite atopique
- LLLT et fonction cérébrale

PÉNÉTRATION TRANSCUTANÉE

- Developing technology: ablative fractional lasers enhance topical drug delivery.
- Erlendsson AM, Anderson RR, Manstein D, Waibel JS.
- Dermatol Surg. 2014 Dec;40 Suppl 12:S142-6. doi: 10.1097/DSS.0000000000000207. No abstract available.
- Laser-assisted drug delivery: beyond ablative devices.
- Bloom BS.
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- Laser-assisted drug delivery: Enhanced response to ingenol mebutate after ablative fractional laser treatment.
- Braun SA, Hevezi P, Homey B, Gerber PA.
- J Am Acad Dermatol. 2015 Feb;72(2):364-5. doi: 10.1016/j.jaad.2014.09.055.

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- Erbium-yttrium-aluminum-garnet laser irradiation ameliorates skin permeation and follicular delivery of antialopecia drugs.
- Lee WR, Shen SC, Aljuffali IA, Li YC, Fang JY.
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- Issa MC, Pires M, Silveira P, Xavier de Brito E, Sasajima C.
- J Cosmet Laser Ther. 2014 Oct 16:1-4. [Epub ahead of print

PÉNÉTRATION CUTANÉE ET PDT

- Pretreatment with ablative fractional laser changes kinetics and biodistribution of topical 5-aminolevulinic acid (ALA) and methyl aminolevulinate (MAL).
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- Hypertrophic scar treatment with intralesional triamcinolone acetonide and pulsed dye laser results in necrosis.
- Chesnut C, Mednik S, Lask G.
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- Treatment of keloids with laser-assisted topical steroid delivery: a retrospective study of 23 cases.
- Cavalié M, Sillard L, Montaudié H, Bahadoran P, Lacour JP, Passeron T.
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- Treatment of atrophic scars with fractionated CO2 laser facilitating delivery of topically applied poly-L-lactic acid.
- Rkein A, Ozog D, Waibel JS.
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- Can persistent toenail fungus be successfully treated with a laser?
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- Novel Treatment of Nail Psoriasis Using the Intense Pulsed Light: A 1-Year Follow-up Study.
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Photodiagnosis Photodyn Ther. 2014 Jun 25. pii: S1572-1000(14)00090-8. doi: 10.1016/j.pdpdt.2014.06.004. [Epub ahead of print]

Comparison of pulsed dye laser (PDL) and photodynamic therapy (PDT) for treatment of facial port-wine stain (PWS) birthmarks in pediatric patients.

Zhang B[1], Zhang TH[2], Huang Z[3], Li Q[1], Yuan KH[4], Hu ZQ[5].

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Abstract

BACKGROUND:

Several studies suggest that vascular-acting photodynamic therapy (PDT) might be an alternative approach for treating port wine stain birthmarks (PWS) but the usefulness of PDT for pediatric patients has not been fully investigated. Study design: Medical records of pediatric patients (3 - 10 years old) with red and purple facial PWS were analyzed. Clinical outcomes after one session of 585nm PDL and PDT treatment were compared.

RESULTS:

The rate of excellent response in the PDT group was significantly higher than that in the PDL group (25.0% vs 10.9%). Although for red lesions there was no significant difference in overall response between two groups, for purple lesions the overall response rate of PDT group was significantly higher than that of PDL group. Lesions located at the forehead, cheek and jaw regions also showed better responses to PDT.

CONCLUSION:

This retrospective study suggests that PDT is safe and effective for treating facial PWS of pediatric patients>3 years old

NAEVUS DE OTTA

- Beneficial Effects of Early Treatment of Nevus of Ota With Low-Fluence 1,064-nm Q-Switched Nd: YAG Laser.
- Seo HM, Choi CW, Kim WS.
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- Low-fluence Q-switched Nd: YAG 1064-nm laser and intense pulsed light for the treatment of melasma.
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VITILIGO

- Treatment of vitiligo patients by excimer laser improves patients' quality of life.
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- J Cutan Med Surg. 2014 Oct;18(5):1-7

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- The role of the 595-nm pulsed dye laser in treating superficial basal cell carcinoma: outcome of a double-blind randomized placebo-controlled trial.
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- Br J Dermatol. 2014 Jul 12. doi: 10.1111/bjd.13266. [Epub ahead of print
- The effect of pulsed dye laser on high-risk basal cell carcinomas with response control by Mohs micrographic surgery.
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CARCINOMES

- 1064 nm long-pulsed Nd:YAG laser treatment of basal cell carcinoma
- Ortiz AE, Anderson RR, Avram MM.
- **Lasers** Surg Med. 2015 Feb 2. doi: 10.1002/lsm.22310

- pulsed, high-fluence 1064 nm Nd:YAG laser therapy for the treatment of BCC on the trunk and extremities.

- This was a prospective, non-randomized, open-label clinical trial. Ten subjects with a biopsy-proven BCC less than 1.5 cm in diameter on the trunk or extremities received one treatment with a 10 milliseconds pulsed 1064 nm Nd:YAG laser. Standard excision was performed 1 month after laser treatment to confirm histologic clearance.

- The laser treatment was quick and well tolerated. There was complete histologic clearance after one treatment in 92% of the BCC tumors, overall. At higher fluences, there was 100% histologic clearance after one treatment. No significant adverse events were seen, including scarring.

ACNÉ

- Treatment of acne vulgaris with fractional radiofrequency microneedling.
- Kim ST, Lee KH, Sim HJ, Suh KS, Jang MS.
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- Falto-Aizpurua LA, Griffith RD, Yazdani Abyaneh MA, Nouri K.
- J Eur Acad Dermatol Venereol. 2014 Nov 21. doi: 10.1111/jdv.12875. [Epub ahead of print]

MALADIE DE DARIER

- Significant alleviation of Darier's disease with fractional CO2 laser.
- Benmously R, Litaiem N, Hammami H, Badri T, Fenniche S.
- J Cosmet Laser Ther. 2014 Dec 17:1-3. [Epub ahead of print]

VIEILLISSEMENT

- Long pulsed 1064 nm Nd:YAG laser treatment for wrinkle reduction and skin laxity: evaluation of new parameters.
- Hong JS, Park SY, Seo KK, Goo BL, Hwang EJ, Park GY, Eun HC.
- Int J Dermatol. 2014 Dec 16. doi: 10.1111/ijd.12626. [Epub ahead of print]
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VIEILLISSEMENT

- Safety and Efficacy of Combining Microfocused Ultrasound With Fractional CO2 Laser Resurfacing for Lifting and Tightening the Face and Neck.
- Woodward JA, Fabi SG, Alster T, Colón-Acevedo B.
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- PMID:

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- Correction of midface volume deficiency using hyaluronic acid filler and intradermal radiofrequency.
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« CELLULITE »

- Non-invasive fat reduction of the flanks using a new cryolipolysis applicator and overlapping, two-cycle treatments.
- Bernstein EF, Bloom JD, Basilavecchio LD, Plugis JM.
- Lasers Surg Med. 2014 Nov 13.

« CELLULITE »

- J Eur Acad Dermatol Venereol. 2015 Feb 9. doi: 10.1111/jdv.12994. [Epub ahead of print]
- Non-invasive subcutaneous fat reduction: a review.
- Kennedy J[1], Verne S, Griffith R, Falto-Aizpurua L, Nouri K.

- LLLT, cryolipolysis, radio frequency (RF) and high-intensity focused ultrasound (HIFU). To review and compare leading techniques and clinical outcomes of non-invasive subcutaneous fat reduction.
- We identified 31 studies (27 prospective clinical studies and four retrospective chart reviews) with a total of 2937 patients that had been treated with LLLT (n = 1114), cryolipolysis (n = 706), HIFU (n = 843) or RF (n = 116) or other techniques (n = 158) for fat reduction or body contouring.
- multiple non-invasive devices are safe and effective for circumferential reduction in local fat tissue by 2 cm or more across the abdomen, hips and thighs. Results are consistent and reproducible for each device and none are associated with any serious or permanent adverse effects

LLLT ET DERMATITE ATOPIQUE

- Clinical efficacy of low-level laser therapy on localized canine atopic dermatitis severity score and localized pruritic visual analog score in pedal pruritus due to canine atopic dermatitis.
- Stich AN, Rosenkrantz WS, Griffin CE.
- Vet Dermatol. 2014 Oct;25(5):464-e74. doi: 10.1111/vde.12144. Epub 2014 Jun 9

LLLT ET FONCTION CÉRÉBRALE

- Low-level laser therapy effectively prevents secondary brain injury induced by immediate early responsive gene X-1 deficiency.
- Zhang Q, Zhou C, Hamblin MR, Wu MX.
- J Cereb Blood Flow Metab. 2014 Aug;34(8):1391-401. doi: 10.1038/jcbfm.2014.95. Epub 2014 May 21.
- PMID:
- 24849666
- [PubMed - indexed for MEDLINE]

- Transcranial low-level laser therapy enhances learning, memory, and neuroprogenitor cells after traumatic brain injury in mice.
- Xuan W, Vatansever F, Huang L, Hamblin MR.
- J Biomed Opt. 2014 Oct;19(10):108003. doi: 10.1117/1.JBO.19.10.108003

LLLT ET FONCTION CÉRÉBRALE

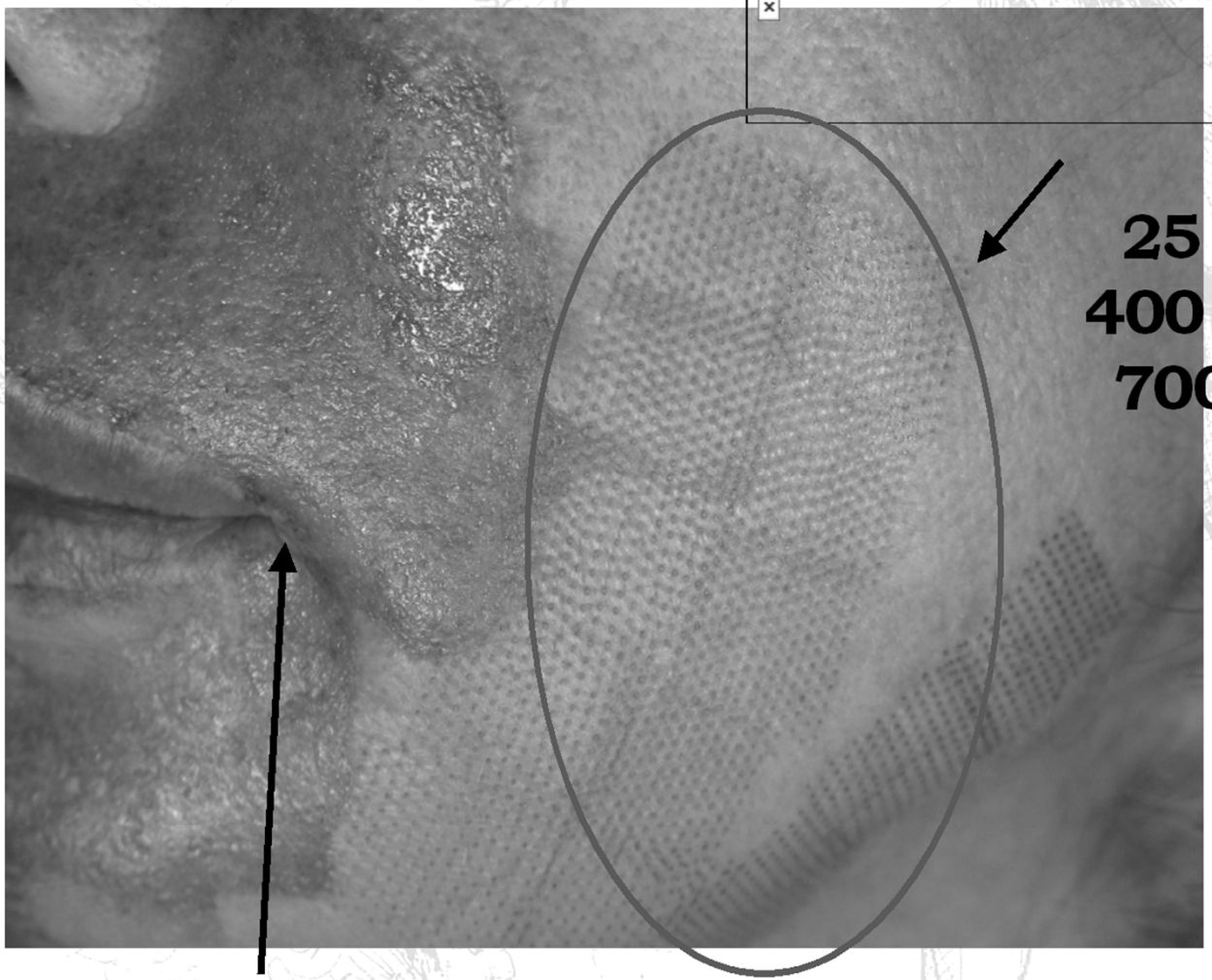
J Neurosurg. 2014 Mar;120(3):670-83. doi: 10.3171/2013.9.JNS13423. Epub 2013 Oct 25.

- Photobiomodulation inside the brain: a novel method of applying near-infrared light intracranially and its impact on dopaminergic cell survival in MPTP-treated mice.
- Moro C[1], Massri NE, Torres N, Ratel D, De Jaeger X, Chabrol C, Perraut F, Bourgerette A, Berger M, Purushothuman S, Johnstone D, Stone J, Mitrofanis J, Benabid AL
- confirmed the neuroprotective effect of NIr on dopaminergic cells in the substantia nigra pars compacta (SNc) in an acute 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP) model of Parkinson disease in mice
- In summary, the authors showed that NIr can be applied intracranially, does not have toxic side effects, and is neuroprotective.

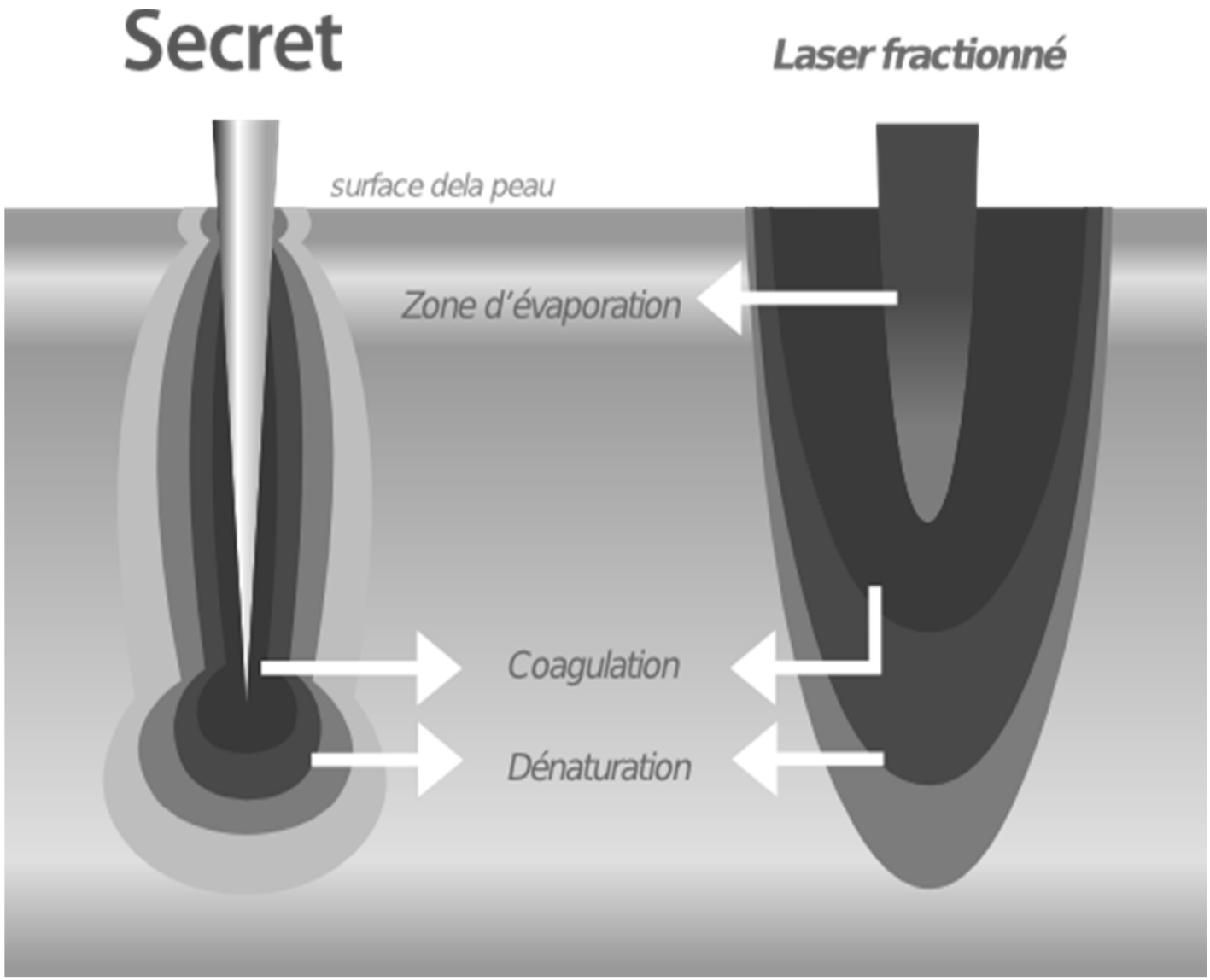
LLLT ET FONCTION CÉRÉBRALE

- Low-level laser therapy for traumatic brain injury in mice increases brain derived neurotrophic factor (BDNF) and synaptogenesis.
- Xuan W, Agrawal T, Huang L, Gupta GK, Hamblin MR.
- J Biophotonics. 2014 Sep 8;9999(9999). doi: 10.1002/jbio.201400069. [Epub ahead of print

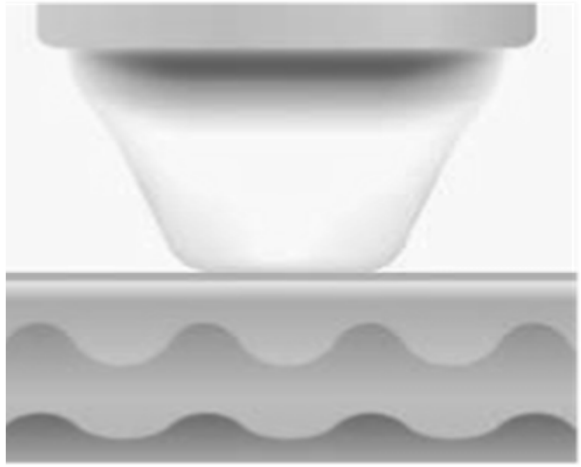
EN PRATIQUE QUOTIDIENNE :



CO^2 classique

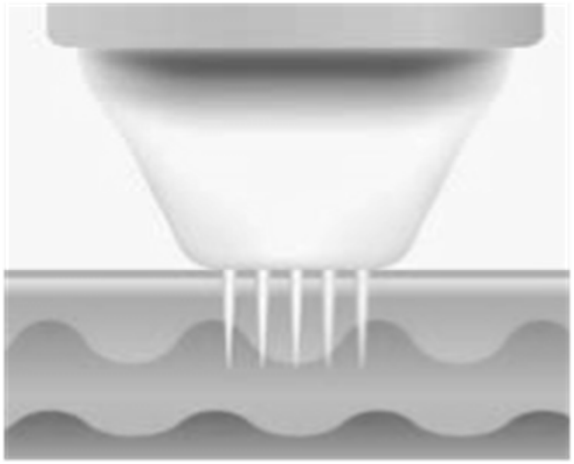

Secret
Laser fractionné
surface dela peau
Zone d'évaporation
Coagulation
Dénaturation

1



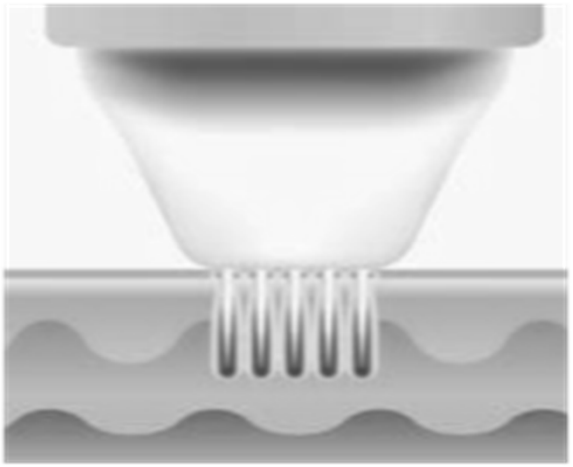
La tête est placée sur la surface de peau

2



Les micro-aiguilles pénètrent dans la peau

3

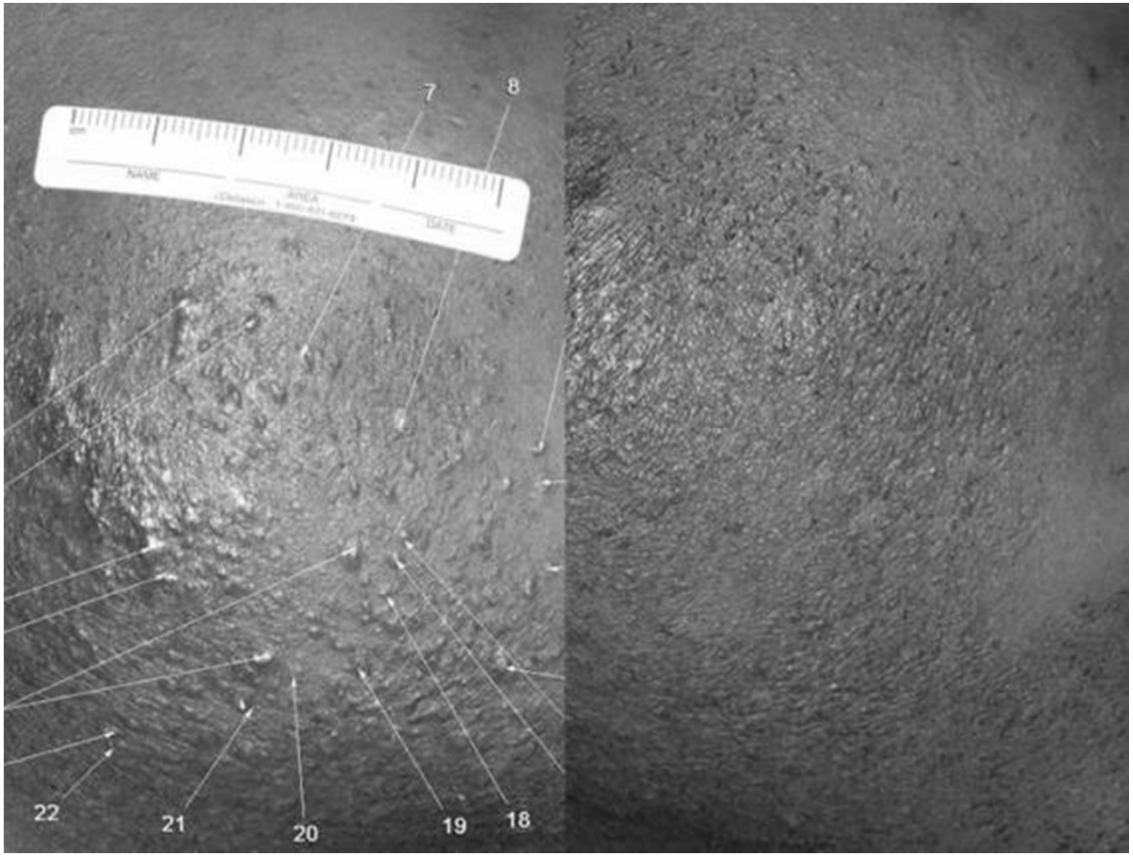


Un courant de RF est envoyé à la zone cible

4

Le collagène va alors se régénérer et de l'élatisne va être produite

PSEUDO FOLLICULITE DE LA BARBE AU YAG



Avant

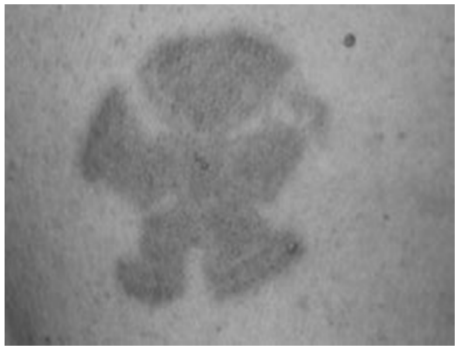
Après

Photos : Ken Meehan, M.D.

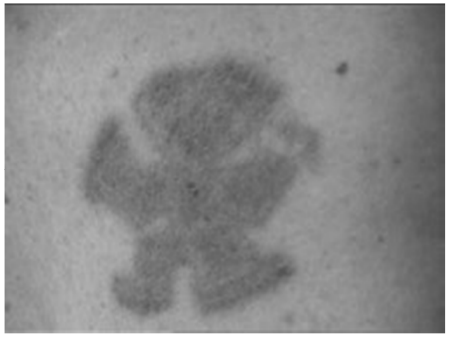
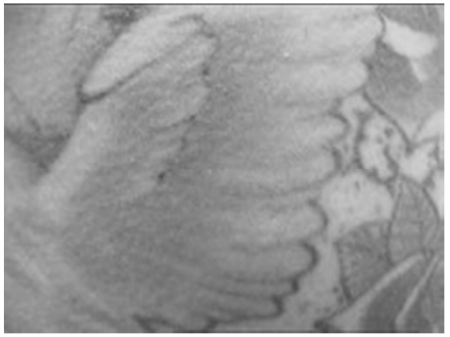
Courtesy Dr JLH Vigneron

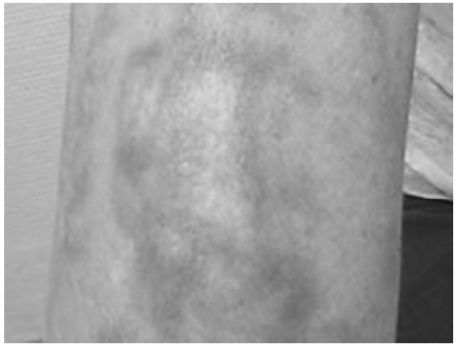
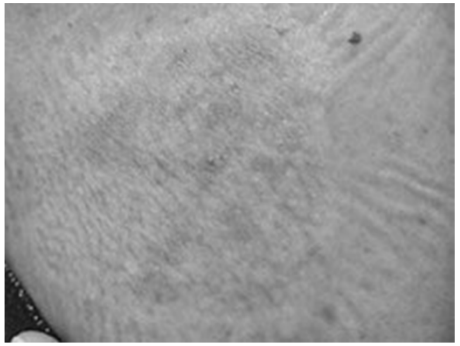
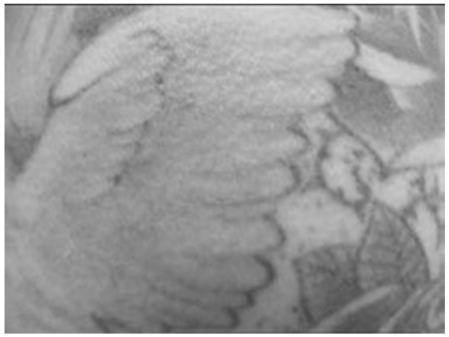
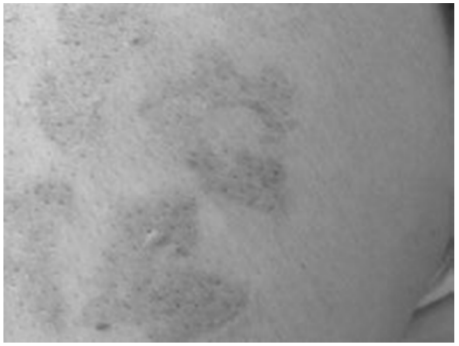
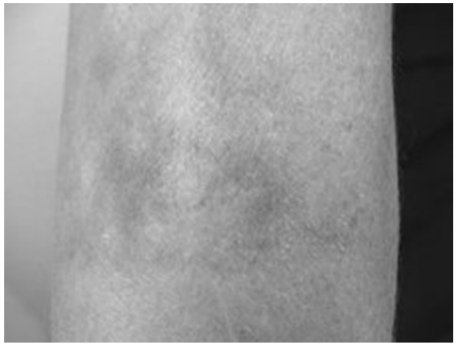
PHOTOS

- Avant traitement
- Après 4 séances de laser QS Yag
- Après 2 séances de Picosure.



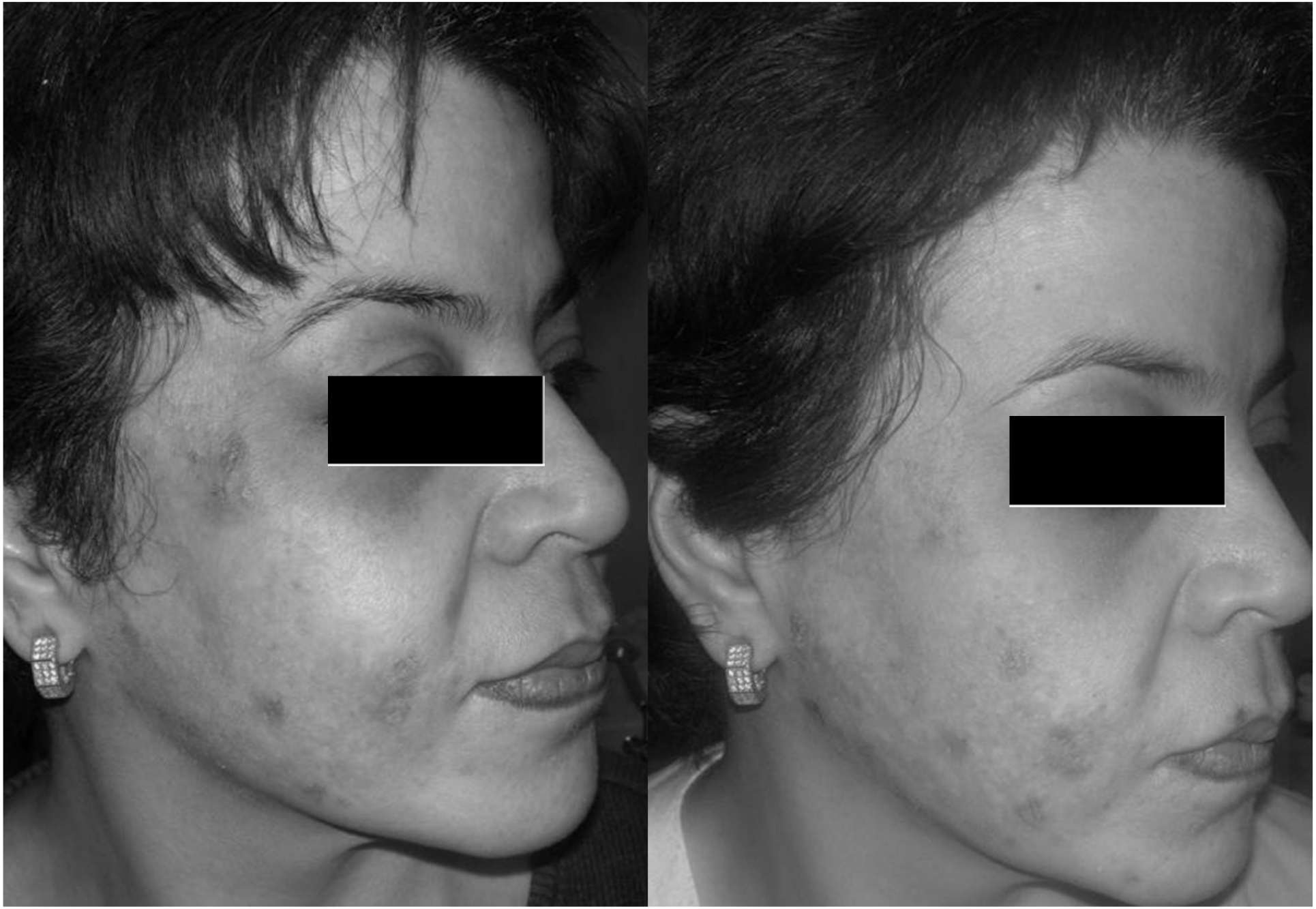



et radiofrequence

Cicatrices 6 mois post trauma crânien et acné




6 semaines après la première séance


23 01 13
10 07 13
30 10 13


02 04 08


30 04 08


21 12 09
06 03 10

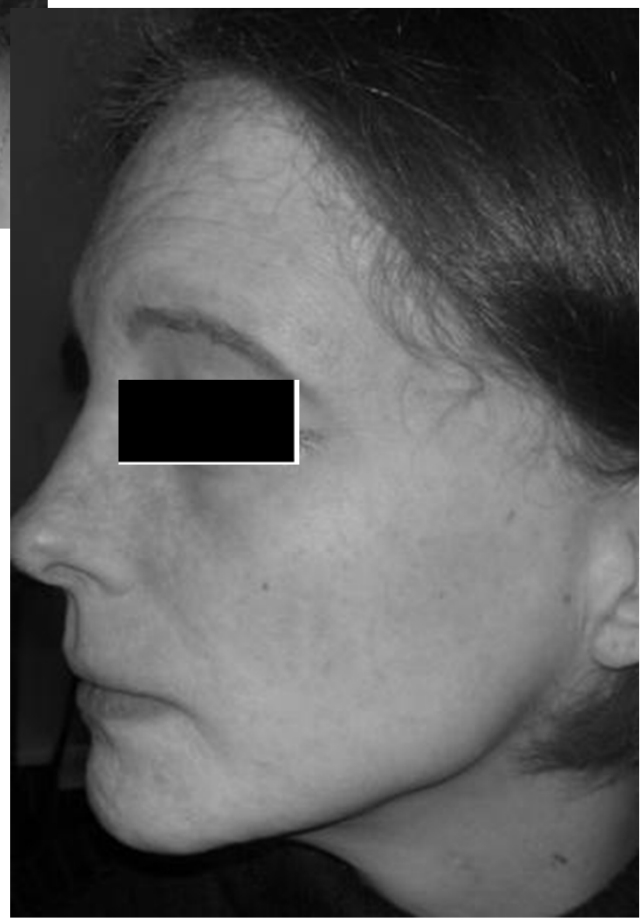
Rosacée résistant aux traitements par cyclines et aux traitements locaux
6 semaines après la première séance

Vue en mai et revue en juillet après une séance

Lupus , aspect en mars puis en novembre,
a eu des séances en mars, juin , septembre

Juste avant et juste après la séance avec gel à l’acide hyaluronique appliqué
(Biologica)
Puis 6 semaines après

Séquelles de Lyell
15 ans auparavant
Vue en septembre,
novembre, janvier, mars



même patiente en septembre et mars , diminution des taches ...et des vergetures


05 11 12


09 10 13
20 09 14

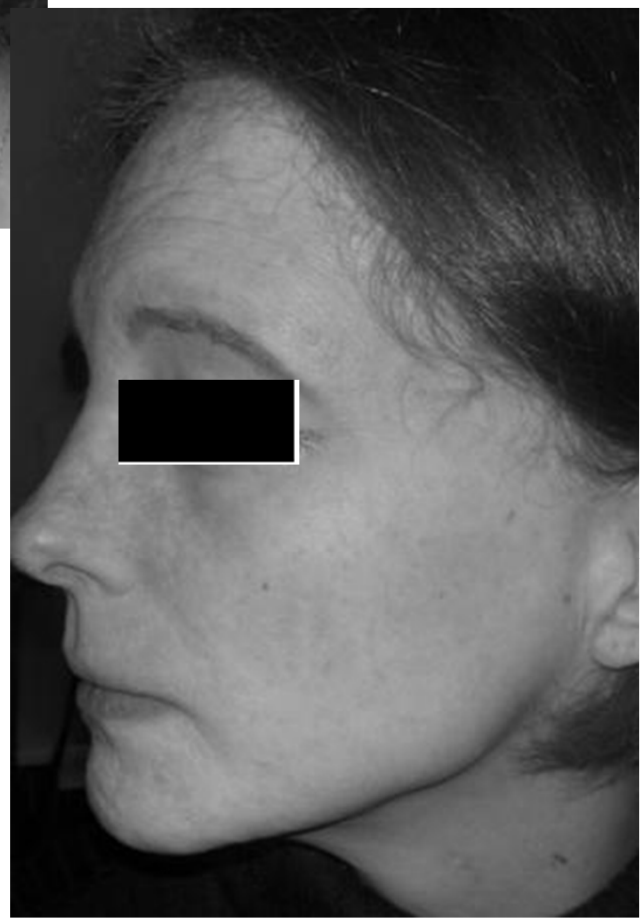

07.03 14
22 05 14


Après 4 séances LED LLLT et RF : résultat « magique »
Visage triste
Visage et mental épanouis

L’EFFET BIEN-ÊTRE DES LED

Cicatrices 6 mois post trauma crânien

Séquelles de Lyell
15 ans auparavant
Vue en septembre,
novembre, janvier, mars




Après 4 séances LED LLLT et RF : résultat « magique »
Visage triste
Visage et mental épanouis


Après 2 séances LED LLLT et RF : résultat « magique »
dépressive avant de commencer
L’effet bien-être est évident

2 mois après une séance avec LED 3 couleurs et RF

CONCLUSION

- Les lasers peuvent rendre service en médecine dans de multiples indications

- Les LED…
- sont nées des travaux du Professeur Dubertret
- Sont utilisées en esthétique, en rhumatologie, ophtalmologie… mais restent quasiment inconnues en dermatologie médicale
- Elle offrent pourtant des perspectives intéressantes en photobiologie


Merci !