Or-Light Efficiency and Tolerance

New-generation intense and pulsed light system

Dr Patricia BERGER

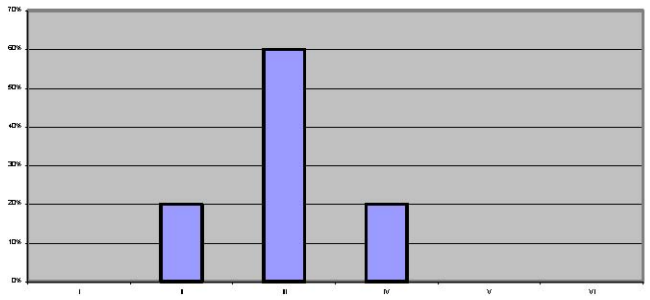
INTRODUCTION

The use of pulsed and intense light systems (polychromatic, non-coherent and non-focussed light) is a commonly used and proven method in the long-lasting hair removal sector. The aim of this study was to assess the efficiency, safety and tolerance of the Or-Light (Yperion Technology) new - generation intense and pulsed light system by a comparison with Epilight (ESC-Sharplan) which, for a long time, has been the benchmark in this technological field.

METHOD

Patients

The study covers 15 patients between 23 to 58 years of age (average age 38), 13 women and 2 men.



Phototype distribution of the various subjects is illustrated in the following table.

The treatment sites were underarm and bikini lines for the women, shoulders and back for the men. Treatment site hair color went from black (2) to light chestnut brown (1). Hair removal methods used by women were wax, razor or hair-removal cream.

Questioning established that there was no hormonal disorder or taking of medecine that would favor hypertrichosis.

All subjects gave their enlightened consent.

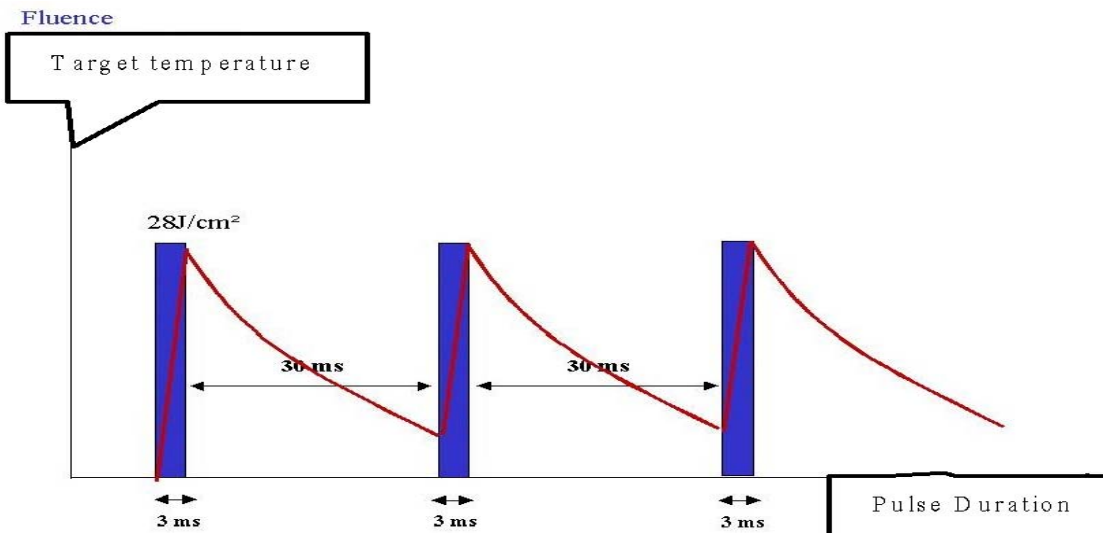
Equipment

For the purposes of the study, the Or-Light system has been called system A and Epilight system B.

Epilight or System B is an intense and pulsed light system with the following features:

- Light spectrum: 590-1200 nanometres
- there are 5 different filters 590, 615, 645, 695, 755 nm which enable the light spectrum to be selected in accordance with hair color and depth. The darker and deeper the hair, the higher the filter used.
- Fluence: 20 to 65 j/cm^2 per pulse sequence
  Pulse sequence: 2 to 5 pulses
  Pulse duration: 2.5 to 7 ms per pulse

- Interval between pulses: 1 to 300 ms (on average 20-50ms)
- Size of the study treatment: 10x45mm



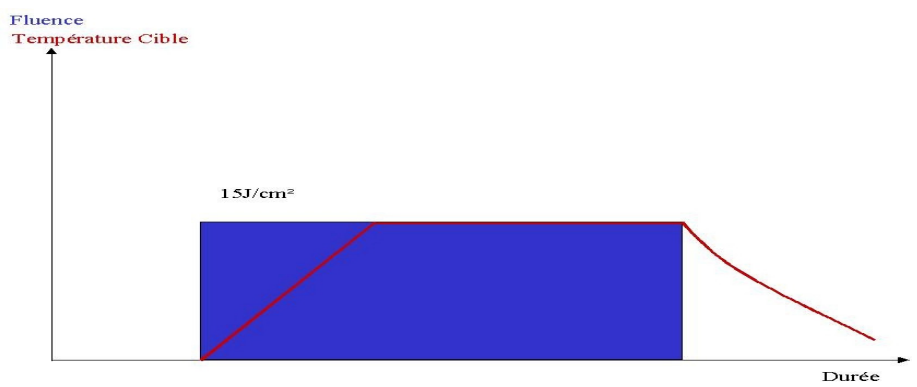
Example of pulse form with Epilight programmed with 3 pulses of 3 ms each at 30ms intervals with a fluence of 28 j/cm^2 (Total duration of pulse sequence 9ms)

Use:

- Hair should be cropped approx. 1-mm in length.
- A thick layer of cold gel is applied to the treatment site.
- The filter is placed perpendicular to the skin without exerting pressure; it must simply be in contact with the gel.

The Or-Light or system A is a new-generation intense and pulsed light system. It uses innovative SPL™ technology (Square Pulsed Light) emitting a single, square-shaped pulse. It features:

- Light spectrum: 610–1000nm that eliminates infra-reds which might bring about a nonspecific heating of water in the skin.
- Fluence: from 8 to 20 j/cm^2 per pulse
- Pulse duration: 15, 30 or 50 ms depending on hair size.
- Spot size: 7,5 cm²



Pulse form in SPL technology e.g. pulse duration of 30ms with fluence of 15j/cm^2

Use:
-The treatment site is shaved as close as possible.
-A thin layer of optical gel is applied to the treatment site.
-The handpiece with a 5cm^2 quartz is pressed firmly against the skin.

PROTOCOL

Patients

For the 13 women, the underarm area and opposite-side bikini line were treated with one system, and the opposite underarm area and opposite-side bikini line with the other system so as to counter any biais of one side which might have higher hair density.

The 2 men had one side of the back treated by system A and the other by system B.

The subjects were not allowed to remove hair on treatment sites between two sessions.

Session

The first 5 sessions were carried out at 5 to 6 week intervals, except for the 2 men where there was an interval of 4 months between the 3rd and 4th sessions so as to avoid the sun-tanning period.

Prior to each session a picture of the treatment was taken sites and, for the women, a picture 3 months after the 5th session.

Equipment

For system A, depending on hair size, pulse duration was of 15, 30 or 50 ms and fluence varied between 8 and 20 j/cm^2. For system B, depending on hair size and color, 4 types of filters were used (615, 645, 695, 755 with a majority of 695), the number of pulses was from 2 to 5, pulse duration varied between 2.6 to 4 ms and intervals between pulses from 30 to 50 ms.

Valuation

After each session a questionnaire was filled in assessing:
-how the customer felt during and just after the session,
-immediate secondary effects.

A file was handed out so as to note any delayed secondary effects.

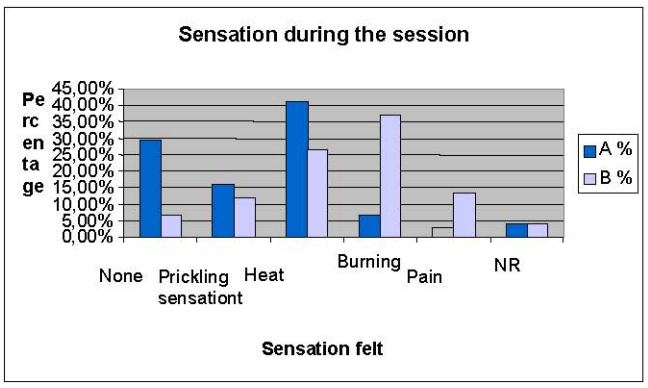
At the end of the treatment, the 15 customers (including the customer excluded after the 4th session except for assessment of efficiency) were asked for each system:
To assess pain and efficiency%discomfort, via a scale from 1 to 10 (1 no pain, 10 very painful)
To assess treatment efficiency on a scale of 10 by 10% steps.
To say whether or not they would like treatment of a fresh site to be carried out if required.

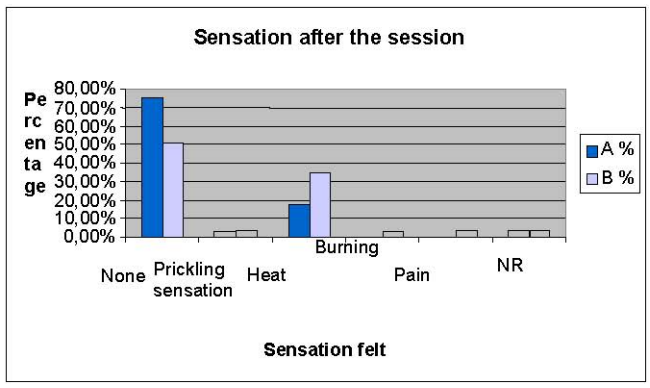
RESULTS

1/ Questionnaire after each session

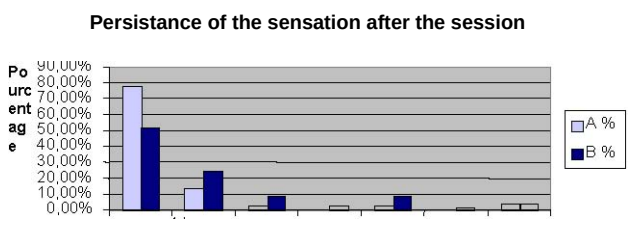
The results are given for the 15 customers over the first 4 sessions and for 14 over the 5th session, since one customer was excluded from the protocol as she was 3-weeks pregnant for the 5th session in question.

Analysis of sensations experienced during and after each session



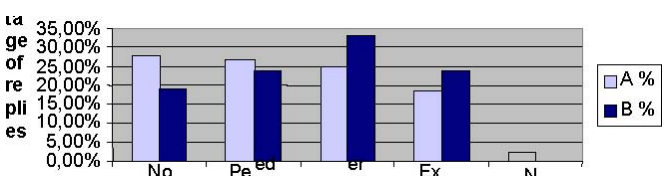


During the 75 sessions, customers experienced uncomfortable sensations of the "burning" or "painful" type in 9.33% with system A as against 52% of cases with system B. These painful sensations completely disappeared at the end of the session for system A whereas 6.67% persisted with system B.



For system B in **12%** of cases, heat, prickling sensation, burning or pain took a minimum of 5 hours to disappear.

Analysis of immediate and delayed skin reactions



Immediate skin reactions were largely the same for the 2 systems, similar to those found with any photo-removal system: perifollicular edema, perifollicular erythema and extensive erythema.

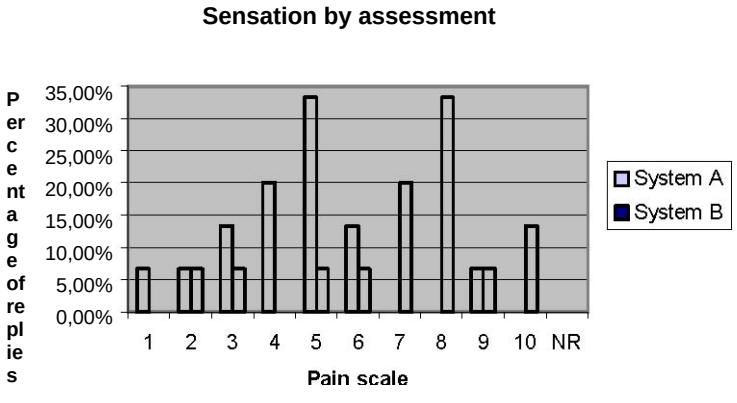
For system A, only one erythema in the underarm area was noted which lasted for less than 24 hours.

For system B, 3 cases of quartz-shaped burn zones were noted, twice on the bikini line, once on the shoulder and these lasted for more than 24 hours.

Folliculiar Erythema Diffuse Erythema Follicular Oedema

2/ Analysis of the questionnaire handed out at the end of treatment (for the whole of the sessions).

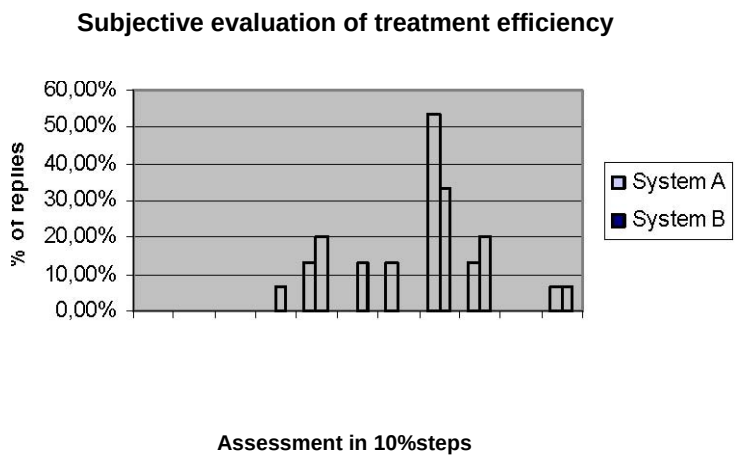
Pain during treatment: (1 no pain, 10 very painful).



For system A, 14 people out of 15 assessed a pain less or equal to 6.

For system B, 12 people out of 15 assessed a pain over or equal to 6

Subjective evaluation of treatment efficiency

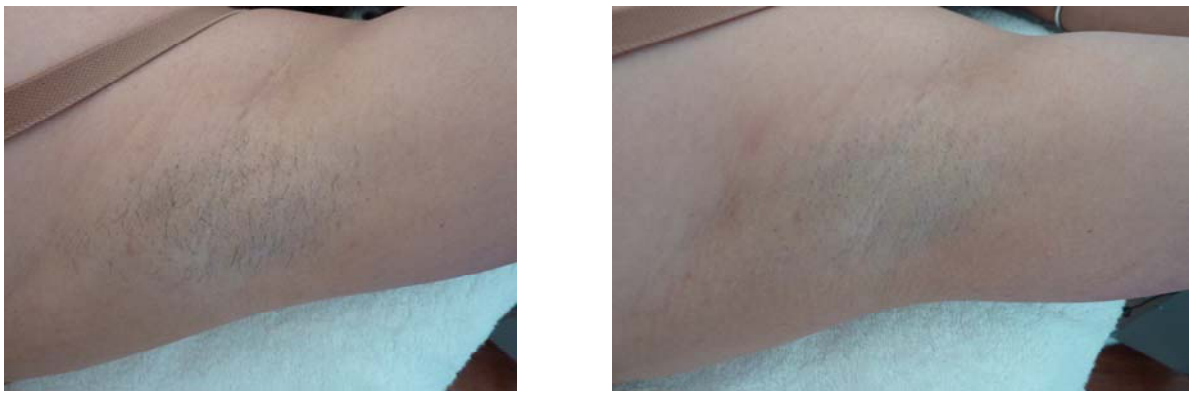


For System A, 12 patients out of 14 found that efficiency was higher than 60% and 2/14 that efficiency was between 40% and 50%.
For system B, only 8 out of 14 found that efficiency was higher than 60% and 6 out of 14 that efficiency was between 30% and 60%.

Patient 1 sight general view of the underarms

Session 1 Five months after Session 5

Patient 10 underarms
System A

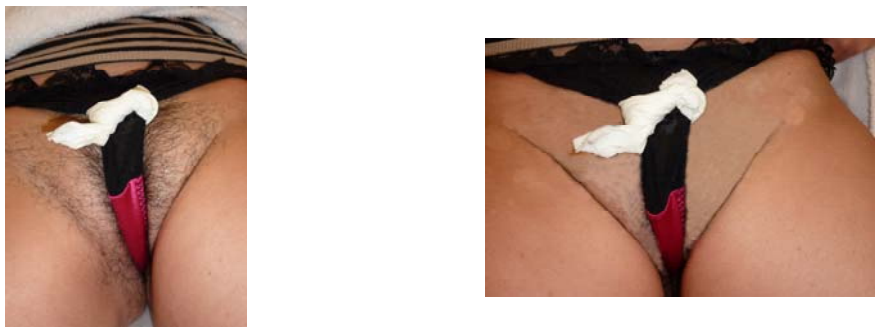


System B

Session 1 Four months after Session 5

Patient 3 bikini

System A



Session 1 Four months after Session 5

System B

Session 1 Four months after Session 5

Patient 4 bikini

System A

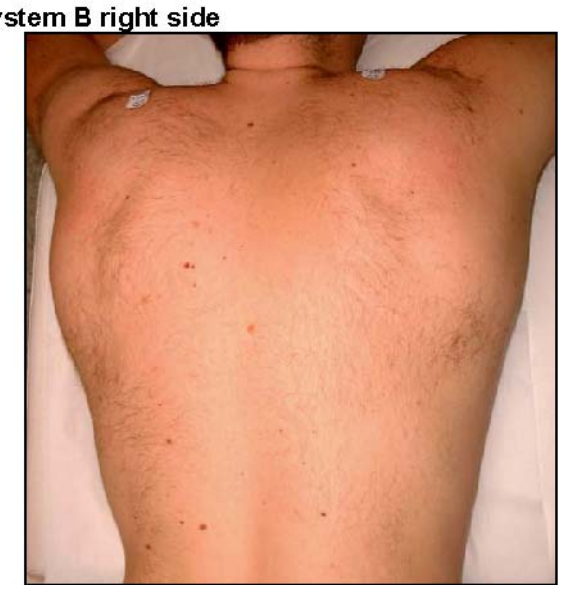
Session 1 Four months after Session 5

System B

Session 1 Four months after Session 5

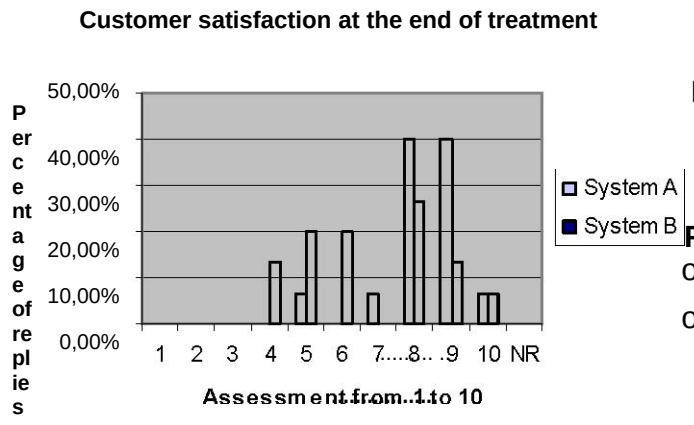
Patient 12 Back

System A left side – System B right side



Session 1 Three months after Session 4

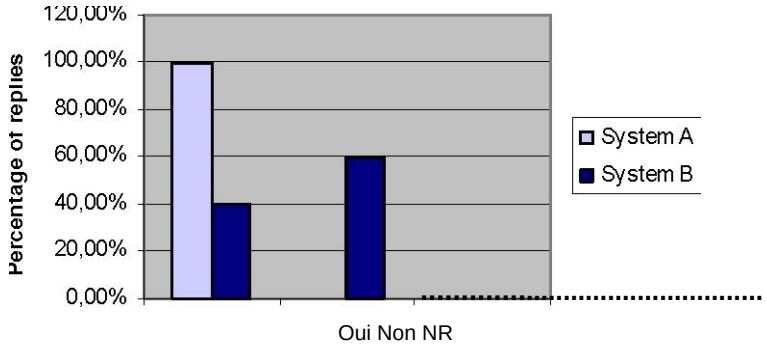
Customer satisfaction at the end of treatment (efficiency%discomfort)



For system A, 14 customers out of 15 had a satisfaction rating over or equal to 7.

For system B, 7 customers out of 15 had a satisfaction rating over or equal to 7

Would you be prepared to have another anatomical site treated if needs be?



For system A, 100% of customers are prepared to have another anatomical site treated.

Only 40 % envisage doing so with **system B.**

CONCLUSION

In this study of 15 customers, the Or-Light system, an intense and pulsed light SPL-technology system, showed clear superiority for tolerance (little discomfort) and safety of operation over Epilight which has for a long time been the benchmark for pulsed light systems.

Despite using apparently low energy (16.5 j/cm^2), the Or-Light shows at the end of the five sessions the same level of efficiency than the Epilight and even better in some cases.

With a single square flash, SPL Technology enables constant rise in temperature at target level and constant temperature hold throughout the pulse duration. Fluence required for optimum efficiency may consequently be reduced, hence its good tolerance rating.

For all these reasons, the Or-Light proves to be an excellent system, user-friendly for the practitioner and easy on the customer.