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Evaluation of Different Temperatures in Cold Air Cooling With Pulsed-Dye Laser

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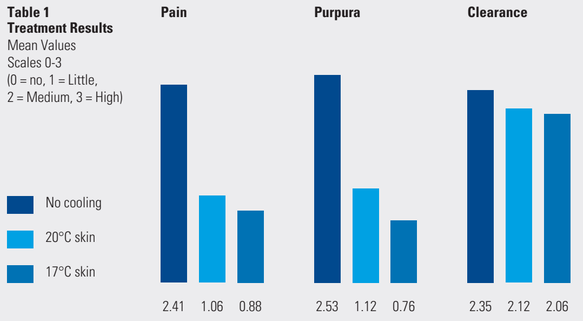
Table 1
Treatment Results
Mean Values
Scales 0-3
(0 = no, 1 = Little,
2 = Medium, 3 = High)



Background and Objectives
Cold air cooling is widely used in dermatological laser therapy. We investigated the influence of cold air cooling at different skin temperatures on therapeutic outcome and side effects of pulsed dye laser treatment of facial telangiectasia.

Study Design / Materials and Methods
From September 2002 to February 2003, 17 patients with previously untreated facial telangiectasia underwent a single treatment session with flash-lamp pulsed dye laser (3.5 J / cm^2, 585 nm, 0.45 milliseconds pulse length, 10 mm beam diameter, Cynosure 1 V). The treatment area was divided into three sub-areas: no cooling, cold air cooling to 20°C and to 17°C skin temperature. The skin temperature was monitored by a prototype infrared sensor system which controlled the temperature of the cold air stream (Cryo 5). In a prospective study, we collected data on purpura, pain, clearance, and patient satisfaction on numerical analog scales (NAS) from 0 (meaning »no«) to 3 (meaning »high«).

Results
Without cooling, purpura (2.53), pain (2.41), and clearance (2.35) were rated mediumto high. Cooling to 20°C reduced purpura (1.12) and pain (1.06), whereas the clearance (2.12) was only slightly affected. Cooling to 17°C reduced purpura (0.88) and pain (0.76) even more, the clearance (2.06) was lowered marginally. Most patients preferred cooling to 20°C skin temperature.

Conclusion
In dermatological laser therapy of facial telangiectasia, the use of cold air cooling can significantly reduce side effects and increase patient satisfaction while only slightly affecting clearance. Cooling to 20°C skin temperature proved to be a well-balanced middle course. For the practical use of cold air cooling, we thus recommend cooling to a level which the patient can tolerate without problems and to try to increase the energy densities.

Cryo

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Zimmer
MedizinSysteme

Technical Data

Power supply	230 V / 50 Hz 230 V / 60 Hz 115 V / 60 Hz
Power input max.	1 KW
Stand-by function	260 W / h
Protection according to IEC 601-1	Class I, Type B
MDD / MPG	Class IIa
Treatment tube length	180 cm
Housing dimensions	H 645 mm / W 390 mm / L 680 mm
Weight	60 kg
Therapy air flow	9 levels, max. 1000 l / min

6 programs combining air flow and treatment time
3 user defined programs
1 favorite user defined program

Set up Menu
Service Menu

Options


Articulating arm


Standard treatment hose


Wheel with brake

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Cryo

Cryo

-30°C Cold Air

The skin cooling system d esigned for superficial laser skin procedures.
The Cryo 6 Cold Air Device is intended to minimize pain and thermal injury during laser and dermatological treatments and for temporary topical anesthetic relief for injections.

Unlike other cooling methods, such as contact cooling, cryogen spray or ice packs, the Cryo 6 can cool the epidermis before, during and after the laser energy has been applied, without deflecting the laser beam.

Easy to operate
A large display clearly indicates all treatment parameters. Cryo 6 features a sensory glass keyboard, which enables the selection from 6 preset programs.

Select a program. Press Start. Enjoy the pleasures waiting at your fingertips.

An optional articulating arm permits »hand free« operation.

The light application hose can be connected to many laser handpieces. The user can easily regulate the air flow for his personal needs.

User Defined Programs
3 Supplementary storage possibilities are free for individual programs.

Storage possibility is available for the user's favorite program. This program appears when Cryo 6 is turned on and at the conclusion of each treatment.

Additionally, the user can choose 2 sequences to be stored as a program for easy selection.

Individual, Favorite and Sequence Program Storage – 3 User-oriented features providing utmost treatment efficiency and state-of-the-art precision.

Economic
Room temperature air is filtered and cooled down to -30°C by a closed cooling circuitry.
- Cost efficient: no consumable handling or additional costs
- Powerful: full day operation with no downtime
- Practical: a special designed glass shelf just where you need it – for a laser, smoke evacuator or accessories.

Easy Maintenance
A constant monitoring system for the defrosted water level and an automatic defrosting feature provide a smooth-running daily operation. The air filter is easy to access, just vacuum when dusty.