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**EFFECTS OF DIODE LASER VERSUS
FLASHLAMP EXPOSURE ON HAIR FOLLICLES**

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Purpose: To compare the effects of diode laser vs. flashlamp exposure on human hair follicles.

Methods: Theoretical modeling for the effects of different laser wavelengths and lamp cut-off filters on hair follicles was performed. An in-vitro experiment on post-mortem scalp skin with dark brown hair compared the thermal damage of hair follicles after diode laser (800 nm) vs. flashlamp (short wavelength cut off 530 nm) exposure. The range of fluence tested was 4–16 J/cm². The pulse duration was 20 ms for all exposures. The samples were processed for serial, horizontal cryosections. Thermal damage was histochemically evaluated by NitroBlue Tetrazolium Chloride (NBTC) stain.

Results: The lowest threshold for thermal damage of the hair follicle was seen at the hair bulb. The threshold for bulb damage was about 5–7 J/cm² and was the same for flashlamp and diode laser exposure. The threshold for hair shaft alterations at the infundibulum was similar for both devices (12–14 J/cm²). The histologic findings were in good correlation with the theoretic modeling.

Conclusions: The effects of diode laser and flashlamp (530 nm cut off) exposures are similar. The minimum fluence to suppress hair growth is expected to be about 5 J/cm² for both devices.