Pico+4 Provides Advanced Treatments and Mastery Over Recalcitrant Cases

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Pico+4 from Lutronic Corporation (Goyang, Korea) brings together picosecond and nanosecond pulse laser technology using 1064 nm, 532 nm, 595 nm and 660 nm wavelengths for premium versatility to combat even recalcitrant lesions and tattoos, as well as erythematic lesions and inflammatory acne. The wide-range of options and indications allows physicians to treat aggressively with minimal impact to healthy skin and tissue, maximizing the quality of outcomes and minimizing risk.

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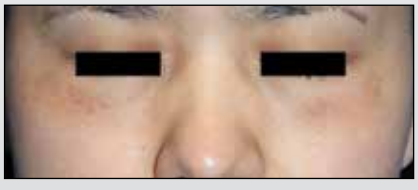
As dermatologist Won-Serk Kim, M.D., Ph.D., Associate Professor and Chairman of the Department of Dermatology at Kangbuk Samsung Hospital, Sungkyunkwan University School of Medicine (Seoul, Korea), expressed, "Although the Q-switched nanosecond (ns) laser revolutionized tattoo removal, there are many recalcitrant cases that remain, even after multiple treatments. Increasing the number of sessions also raises the risk of side effects such as pigmentary or textural changes. The picosecond (ps) approach brings versatility into my armamentarium and allows me to deal with hard-to-treat cases that have challenged ns-based systems. With Pico+4 I see shorter application times, fewer sessions and less in the way of side effects."

The range of wavelengths was chosen to provide physicians with an ideal toolset. "These four ps-domain wavelengths comprise the main 1064 nm Nd:YAG line and the frequency-doubled 532 nm wavelength, but there are two additional wavelengths: the 595 nm visible yellow and 660 nm visible red," said Prof. Kim. "The 1064 nm penetrates for effective treatment of deeper dermal lesions, including tattoos. The 532 nm has excellent absorption in melanin and is therefore ideal for circumscribed epidermal pigmented lesions. Inflammation-related redness and erythema respond extremely well to the 595 nm wavelength, and the 660 nm handpiece offers much safer removal of small epidermal pigmented lesions than the 532 nm approach, especially in older, more delicate or darker Asian skin types, with less chance of post-inflammatory hyperpigmentation (PIH)."

Melasma before treatment



Melasma after Pico+4 treatment

Photos courtesy of Won-Serk Kim, M.D., Ph.D.

Managing PIH is highly important for the Asian population and Pico+4 is uniquely ready for the challenge. "The propensity for Asian skin types III, IV and V to form PIH is well-recognized, compared with skin types I and II," Prof. Kim noted. "The stability and quality of the 532 nm beam is therefore particularly critical. Pico+4 can deliver extremely low fluences at 532 nm, which is not always available in picosecond systems other than Pico+4. This means less inflammation at the dermoepidermal junction, and hence, less chance of forming PIH."

With four picosecond wavelengths and two pulse modes to choose from, Pico+4 users are prepared to handle even intricate multi-pigment tattoos. "This system offers a very stable output at low and high pulse energies, with both the highest and widest range of fluences available among current systems," Prof. Kim stated, "but despite this range to choose from, precise fluence selection is easy using the intuitive jog-and-shuttle selector on the touchscreen. I am also able to select the ideal protocol for the lesion being treated from five available options."

In addition to the Pico Toning Collimated and Zoom handpieces (both 1064 and 532 nm), there are the refillable Gold Toning+ (595 nm) and RuVY Touch+ (660 nm)

handpieces, the Focused Dots handpiece offers a fractional version of 1064 nm ps treatment. As Prof. Kim pointed out, "The Focused Dots handpiece delivers 81 focused microbeams per shot over a 7.4 x 7.4 mm spot, leaving undamaged tissue between each microbeam to speed up tissue repair and minimize downtime. I find this to be an ideal approach for skin rejuvenation, scar revision and so on, increasing the flexibility of the Pico⁺4 beyond the usual pigmented lesion targets."

Prof. Kim explained that tattoos (including multicolored ones) may be treated using the zoom and collimated handpieces employing the 1064 nm and 532 nm wavelengths with a large range of spot sizes. The 595 nm handpiece is ideal for sky blue tattoo pigments and the 660 nm can target green pigments. In addition to tattoo pigment, "Using low fluences and multiple passes via the Pico Toning technique, 1064 nm with the collimated handpiece, is working very well for melasma, and in combination with higher fluences can treat nevus of Ota and ABNOM," he added.

"Lentigines and freckles respond well to the 532 nm at very low fluences, and the 660 nm RuVY (Ruby-like Versatile YAG) Touch⁺ handpiece allows a safer and gentler approach in older or PIH-prone skin. The same wavelengths and handpieces also handle seborrheic keratoses very well," Prof. Kim continued. The ps Gold Toning⁺ 595 nm handpiece offers a wide-range of indications in many inflammatory-related conditions, such as post-acne and post-laser redness, the inflammatory component of inflammatory acne, facial flushing and rosacea, he pointed out. This handpiece can also be used very successfully in combination with 1064 Pico Toning for melasma associated with dermal vascular abnormalities.

According to Prof. Kim patients who have been treated with Q-switched lasers report that Pico⁺4 is much more comfortable; the skin reaction is milder with shorter downtime and fewer side effects. Anesthesia, analgesia and cooling are not usually required, but Prof. Kim may use EMLA or another topical anesthetic cream for patients with more sensitive skin. "Treatment pain is significantly reduced and we have much less potential for scar formation," he said. "Sessions are shorter, and better results are obtained faster, so fewer treatments are required when compared to Q-switched systems. When cases fail to respond adequately to treatment with nanosecond systems, having the ability to bring patients back and make progress gives physicians and patients confidence in the final outcome."

Realization of outcomes is gradual and the onset of visible effects depends on the lesion in question, Prof. Kim emphasized. "In the case of melasma, I usually see improvement after the third session with Pico⁺4, which is maintained with further sessions. For tattoos it depends on the depth and density of pigment, but I have seen really good results in professional tattoos after even a few sessions. Epidermal pigmented lesions tend to respond most favorably, with good results seen one week after the first treatment."

Pico⁺4 is also designed to be easy and convenient to use. In addition to the variety of available wavelengths and handpieces, features include robust construction, high fluence stability, rapid and precise on-the-fly fluence modulation via jog-and-shuttle control, and integrated handpiece storage.

Nevus of Ota before treatment

Nevus of Ota after Pico⁺4 treatment

Photos courtesy of Won-Serk Kim, M.D., Ph.D.