

**Title:** Clinical application of Er:YAG laser, Lite Touch, in a dental practice mainly with preventive dentistry

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Dental clinics use various types of instruments, for example, to cut, remove, prepare, grind. Engine drills, air turbine bur, ultra sonic instruments are usual. Various types of CO<sub>2</sub>, Nd:YAG, Er:YAG, YSGG lasers are also used on a daily basis. Dental clinics which use laser have a positive image for patients. Therefore, at the present time, many dental clinics in Japan use them. In particular, Er:YAG laser and YSGG laser are effective for soft and hard tissue. Recently, Syneron (Israel) developed a new type of Er:YAG laser (Lite Touch) which does not use a fiber to guide the laser beam. It is very sturdy and the maintenance cost is low. The laser chamber is placed within the headpiece. The laser beam streams to the hand-piece while drilling, so there is no loss of energy.

I will introduce the following treatment using Lite Touch; esthetic use (pigmentation and gingivectomy), general dentistry and pedodontics (root canal treatment, composite resin restoration, peri-implantitis and peripheral periodontitis), oral surgery (extraction, soft tissue diseases, abscess and implant surgery (preparation of starting dimple for implant bed, preparation of pilot hole for implant bed, bone hole in bone block for fixation screw, arrangement of block's contour, and second stage surgery and peri-implantitis). All these treatments are performed by dentists.

Recently, preventive treatment ; sealant for pit and fissure and PMTC (professional mechanical tooth cleaning) by hygienist are common in Japanese dental clinics. This, new type of Er :YAG laser is also available. In cases of sealant, at first, a dental caries detector (Diagnodent) using fluorescence reacted by laser with a wavelength of 655 nm is used to absent caries. Bacterias in pit and fissure are removed by Er :YAG laser and then sealed by light curing resin. To maintain healthy gingival tissue, low energy of Er :YAG laser is also used by dental hygienists. Laser beam in 0.5W using low mode hand-piece of Lite Touch is radiated in the periodontal sulcus to maintain the healthy gum after PMTC. It is one treatment using LLLT (low level laser therapy).

Thus, the main treatments in dental clinics in Japan are composed of dentist's and hygienist's fields. It is now changing from treating diseases, to maintaining healthy conditions of oral tissue. Lasers, especially Lite Touch, are available to both fields. This lecture will show the usefulness of Er :YAG lasers, especially Lite Touch.