Dentin hypersensitivity is a rather common problem for which there is still no effective solution. It occurs according to the hydrodynamic theory, when various stimuli displace the fluid in dentinal tubules toward the in- and outside, activating the nerve endings at the pulp-dentin interface and causing pain.\(^1\) In order to eliminate such discomfort for patients, several substances have been tested. Most of the treatments tested have aimed to block exposed dentinal tubules, but none of these treatments has produced consistently effective or long-lasting results.\(^2\) Seeking for a solution for this problem, laser therapy was introduced as an alternative for the management of dentin sensitivity.\(^3-5\)

Among the different lasers used, desensitization seems to depend mostly on the type of laser therapy adopted. Since the desensitizing mechanism is distinct for each emitted wavelength, success rates reported differ according to laser device, irradiation parameters (adequate wavelength, power density, wave mode, frequency of pulses, and number of irradiation repetitions), and investigative methods used to assess dentinal pain. Therefore, the purpose of this paper was to...
review laser effects on hypersensitive dentin and to critically discuss most relevant aspects related to laser therapy in minimizing dentinal pain.

**EFFECTS OF LASER THERAPY ON HYPERSENSITIVE DENTIN**

Although the mechanism of low-level lasers is not completely known, it is believed that the energy absorbed from the photons is transformed into photochemical, photothermal, photomechanical, and photoelectric effects, especially in compromised cells and tissues. Misserendino et al\(^6\) pointed out that the interaction of radiant energy and oral tissues is dependent on wavelength specificity (which is determined by the inherent optical properties of the irradiated tissue); power density (which influences the type of interaction with the tissue), and irradiation time (which limits the extent of interaction).

Desensitization of hypersensitive teeth with laser has focused two different approaches: low-level and high-level laser therapy. Equipment, protocols, and mechanisms involved with both types are discussed throughout the paper.

**Low-level Laser Therapy**

Low-level laser therapy (LLLT) was initially utilized in dentistry to accelerate wound healing, minimize pain, and reduce inflammatory responses. Low-level lasers have been widely investigated due to their lower costs compared to other lasers, and their simplicity of use. The first low-level laser introduced was helium-neon (He-Ne), which combined a gaseous mixture to produce a wavelength in the visible light spectrum \((\lambda = 632.8 \text{ nm})\) and low power output (ranging from 5 mW to 30 mW). Since the wavelength produced by He-Ne laser was highly absorbed by soft tissues, its penetration was limited. New diode lasers were developed in the attempt to obtain slightly higher power output and wavelengths that could penetrate soft tissues without damaging them. Diode lasers are usually variants of gallium:aluminum:arsenide (GaAlAs), which emit in the near infrared spectrum (780 nm, 830 nm, and 900 nm; power output from 20 to 100 mW), or indium:gallium:arsenide:phosphorus (In:Ga:As:P) devices, which emit wavelengths in the red spectrum of visible light (600 to 680 nm, power output from 1 to 50 mW).\(^7,8\)

The desensitizing mechanism obtained with LLLT is as yet elusive. It is believed that low-level therapy lasers stimulate nerve cells, interfering with the polarity of cell membranes by increasing the amplitude of the action potentials of cellular membranes, thus blocking the transmission of pain stimuli in hypersensitive dentin.\(^9\) It seems that the low output lasers mediate analgesic effects due to depressed nerve transmission.\(^10,11\)

In addition to the analgesic effect, biostimulation induced by low-level lasers increases the physiologic activity of tissues, thus enhancing healing processes and minimizing pain. Pereira et al\(^12\) found that low-power Ga-Al diode laser irradiation, with energy densities of 3 J/cm\(^2\) and 4 J/cm\(^2\), power output of 120 mW, and wavelength of 904 nm, increased the number of cells in cultured fibroblasts about three- to sixfold when compared to control cultures. Those authors discovered that small differences in energy density may produce different actions on cell growth, and demonstrated that this particular laser irradiation could stimulate fibroblast proliferation without impairing procollagen synthesis. When testing diode lasers at different wavelengths and distinct exposure periods, Almeida-Lopes et al.\(^13\) observed that lasers of equal power output produced similar effects on cell growth, independent of the wavelengths investigated.

**High-level Laser Therapy**

High-level laser therapy (HLLT) has also been applied to minimize dentinal pain, and may be delivered by devices with higher power outputs, such as carbon dioxide (CO\(_2\)), neodymium yttrium-aluminum-garnet (Nd:YAG), and erbium yttrium-aluminum-garnet (Er:YAG) lasers, when they are used at lower energy settings.

The effect of HLLT on human teeth has been variously described by different authors. Scanning electron microscopy (SEM) after irradiation has been performed as an attempt to detect in vitro the mechanism of high-level lasers in desensitization. Occlusion of dentinal tubules has been observed in several studies, thus suggesting this may be the possible mechanism involved in pain relief.\(^2,9,14,15\) Moritz et al.\(^5\) in long-term examinations of irradiated human teeth in vivo, observed with SEM the complete closure of dentinal tubules even 4 and 6 months after CO\(_2\) laser treatment. Additional benefits in occluding tubules may be obtained when laser irradiation is combined with conventional desensitization therapies. Lan et al\(^15\) observed that the application of fluoride varnish prior to Nd:YAG irradiation closed over 90% of dentinal tubule
orifices in vitro, even after 30 min of brushing with an electric toothbrush. Atomic absorption spectroscopy of in vivo dentin samples that received fluoridation prior to CO2 irradiation indicated that the combined therapy results in permanent integration of fluoride in the dentin surface, even 6 months after treatment.3,5

This obliterating effect may be responsible for a significant reduction in dentin permeability after laser irradiation. Goodis et al,2 using SEM, detected that the decrease in permeability was correlated with the partial blocking of the dentin tubules obtained after a 2-min treatment with Nd:YAG or Ho:YAG irradiation. Those authors speculated that the occlusion of tubules may be due to the thermal coagulation of proteins, thus producing instant pain relief as a result of denatured protein present in the dentinal fluid.11

Liu et al14 observed that Nd:YAG irradiation indeed results in sealing of human dentinal tubules to a depth of ca 4 µm. However, the occlusion effect depends mostly on the irradiation parameters and laser device used.8 While heating during Nd:YAG and CO2 irradiation has been reported to produce melting and resolidification of superficial dentin,5,14 the same lasers may produce the opposite effects when excessive energy is applied, including crack formation, removal of the smear layer, and vaporization of organic material, thus increasing dentin permeability.16 Likewise, Er:YAG irradiation is able to ablate hard dental tissues, but at lower energy settings, it seems to reduce fluid movement in dentin by evaporating the superficial layers of dentinal fluid.17 Although some roughness is produced on the tooth surface by Er:YAG energy from 60 to 100 mJ, no sign of thermal side effects such as charring, melting, or fusion is detected.18

Fayad et al16 proposed a different dentin desensitization effect produced by lower energy CO2 irradiation. The authors detected transient effects on impedance measurements of dentin and suggested that the high overall heat energy of the laser produced desiccation of dentin, thereby making it less permeable. According to Pashley et al,19 desiccation of human dentin reduced its hydraulic conductance. Dehydration might have resulted in an increased concentration of organic and inorganic constituents within the tubules, and precipitation of these substances in the tubule lumina could restrict the fluid movement, thus causing temporary desensitization. Therefore, pain relief due to desiccation is temporary and tends to return after rehydration.16

The major concern when using high-level lasers is overheating the pulp, this producing irreversible damage. Excessive thermal damage has been a problem associated with laser systems such as Nd:YAG, CO2, and Er:YAG, if the temperature rises more than 5.6°C, which is the critical point considered to threaten pulp vitality.20 Since infrared wavelengths possess inherent heat-producing characteristics,21 high intensity protocols, especially in a continuous wave mode, might be a risk to the pulp.

Although previous papers have addressed the problem of overheating and possible necrosis produced by laser, it seems that this problem is much more likely to happen when adequate parameters are exceeded. Lan and Liu22 assessed pulp response to electrical stimulation with a pulp vitality meter and detected no significant differences during the 3 months of evaluation. Laser Doppler measurements registered immediately before and after laser treatment demonstrated no change in pulpal blood flow after CO2 irradiation.3 Indeed, it is theoretically possible that the interaction of the pulp tissue with the infrared wavelengths that penetrate calcified tissues will stimulate dentinogenesis, inducing predentin, reparative dentin, and dentinal bridging responses as a consequence of any laser-induced trauma.21 Intermittent formation of new dentin, with concomitant pulp vitality is a normal response of the pulp to external insults.21 Thus, the irritation produced by the high-laser irradiation may play an additional role not solely confined to obliterating dentin tubules. Perhaps high-level laser irradiation at the surface of exposed dentin may also induce deposition of new dentin in deeper regions of the tissue, provided that the total energy emitted does not overcome its biological limits. Although this is not considered the usual response, the whole key to the type of biological outcome produced by living tissues lies in the irradiation parameters used.

Unfortunately, if high power and energy densities are applied, overheating of the pulp will exclude this possibility.21 If elevated temperatures are expected to occur during laser irradiation, the continuous presence of a surface film of water combined with breaks during laser irradiation will be an effective means to allow cooling of teeth and guarantee pulp vitality.11,23 Additionally, the use of pulsing alone may be an effective means of temperature control when lasers are to be applied to teeth with vital pulps.21

**EFFECTIVENESS OF LASER THERAPY FOR HYPERSENSITIVE DENTIN**

Details from clinical trials that investigated the effectiveness of laser therapy in the management of dentin
Table 1  Outcome data and irradiation protocols of different lasers used to treat hypersensitive dentin

<table>
<thead>
<tr>
<th>Laser</th>
<th>Publication</th>
<th>Irradiation protocol</th>
<th>Compared with</th>
<th>Follow-up</th>
<th>Sample</th>
<th>Study design</th>
<th>Pain relief after laser therapy (last recall)</th>
<th>Pain relief of control group</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. High-level lasers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Renton-Harper and Midda24</td>
<td>1992</td>
<td>Pulsed (10 pps, 100 mJ) for 2min</td>
<td>No treatment</td>
<td>2 weeks</td>
<td>30 patients (86 teeth)</td>
<td>Split mouth</td>
<td>−50%</td>
<td>−25%</td>
</tr>
<tr>
<td>Lan and Liu22</td>
<td>1996</td>
<td>Pulsed (30 mJ, 10 pps) for 2min</td>
<td>No treatment</td>
<td>3 months</td>
<td>30 patients (60 teeth)</td>
<td>Split mouth</td>
<td>65% to 72%</td>
<td>7% to 10%</td>
</tr>
<tr>
<td>Nd:YAG (λ, 1.064nm)</td>
<td>Gutknecht et al4</td>
<td>1997</td>
<td>Pulsed (10-50 Hz; pulse=150 µs) for 30 to 90 s, 0.3 W-8 W</td>
<td>Fluoridation (Duraphat)</td>
<td>3 months</td>
<td>21 patients (120 teeth)</td>
<td>Split mouth</td>
<td>83% to 93%</td>
</tr>
<tr>
<td>Lier et al26</td>
<td>2002</td>
<td>30 s without cooling and 90 s using water cooling system, 4 W</td>
<td>Nonactivated laser equipment</td>
<td>4 months</td>
<td>17 patients (34 teeth)</td>
<td>Split mouth</td>
<td>−37%</td>
<td>−30%</td>
</tr>
<tr>
<td>Ciaramicoli et al33</td>
<td>2003</td>
<td>3 sessions of pulsed (40 mJ/pulse; pulse=100 ms, 15 Hz), for 30 s, 1 W</td>
<td>Removal of etiologic effects</td>
<td>6 months</td>
<td>20 patients (145 teeth)</td>
<td>Split mouth</td>
<td>−80%</td>
<td>−59%</td>
</tr>
<tr>
<td>CO2 (λ, 10,600nm) + stannous fluoride</td>
<td>Moritz et al3</td>
<td>1998</td>
<td>Continuous wave for 30 s, 0.5 W</td>
<td>6-week fluoridation</td>
<td>3 months</td>
<td>144 patients</td>
<td>Parallel</td>
<td>94.5% to 98.6%</td>
</tr>
<tr>
<td>CO2 (λ, 10,600nm)</td>
<td>Zhang et al11</td>
<td>1998</td>
<td>1 W in continuous wave mode, from 5 to 10 s</td>
<td>No control group</td>
<td>3 months</td>
<td>23 patients</td>
<td>Not clear</td>
<td>50%</td>
</tr>
<tr>
<td>Er:YAG (λ, 2,940nm)</td>
<td>Scharzw et al17</td>
<td>2002</td>
<td>Pulsed (80 mJ/pulse, 3 Hz)</td>
<td>Dentin Protector®* 6 months</td>
<td>30 patients (104 teeth)</td>
<td>Split mouth</td>
<td>−50%</td>
<td>10%</td>
</tr>
<tr>
<td>2. Low-level lasers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GaAlAs (λ, 830nm)</td>
<td>Gerschman et al10</td>
<td>1994</td>
<td>4 sessions of continuous wave irradiation for 1min, power output of 30 mW (total irradiance =1.8J)</td>
<td>Nonactivated laser equipment</td>
<td>2 months</td>
<td>61 patients</td>
<td>Parallel controlled trial</td>
<td>65% to 67%</td>
</tr>
<tr>
<td>GaAlAs (λ, 780nm)</td>
<td>Wakabayashi and Matsumoto28</td>
<td>1988</td>
<td>Continuous wave for 30 to 180 s, 30mW</td>
<td>No treatment</td>
<td>Immediate</td>
<td>130 teeth</td>
<td>Not clear</td>
<td>98%</td>
</tr>
<tr>
<td>GaAlAs (λ, 670nm)</td>
<td>Marsilio et al31</td>
<td>2003</td>
<td>6 sessions (72 h apart) of 3 J/cm², 15 mW</td>
<td>6 sessions (72h apart) of 5 J/cm²</td>
<td>2 months</td>
<td>25 patients (106 teeth)</td>
<td>Split mouth</td>
<td>87%</td>
</tr>
<tr>
<td>He-Ne (λ, 632.8nm)</td>
<td>Wilder-Smith28</td>
<td>1988</td>
<td>6 mW, 5 Hz for 2.5min during 3 consecutive days</td>
<td>No control group</td>
<td>1 month</td>
<td>20 patients (97 teeth)</td>
<td>Not clear</td>
<td>5%</td>
</tr>
<tr>
<td>He-Ne (λ, 632.8nm)</td>
<td>Gelskey et al10</td>
<td>1993</td>
<td>10 pps for 10 s, increased from 10 to 40 s, resting every 10 s, from 30 mJ to 100 mJ</td>
<td>HeNe + Nd:YAG</td>
<td>3 months</td>
<td>19 patients (38 teeth)</td>
<td>Split mouth</td>
<td>61% to 63%</td>
</tr>
</tbody>
</table>

* polyurethane-isocyanate 22.5%; methylene chloride 77.5%.
hypersensitivity are presented in Table 1. Laser devices and wavelengths, irradiation parameters, study design, sample, comparative methods, follow-up periods, and frequencies of pain relief are described to facilitate comparison.

Differences in the effectiveness between studies may be explained by the diverse types of laser and irradiation parameters applied. Likewise, inclusion and exclusion criteria adopted for patient selection, different study designs, the placebo effect, and the various evaluation methods used to assess dentinal pain play an important role in the divergent results observed, since these are the most important variables related to clinical trials of hypersensitivity.

**IRRADIATION PROTOCOLS**

Irradiation parameters vary according to the laser device tested and to previous studies developed by each research team performing the clinical trials. A compilation of data published by Kimura et al.⁸ from various papers that investigated the results of laser therapy in hypersensitive teeth is presented in Table 2. It may be observed that the pain relief ratio is also extremely variable, even for the same laser device.

Although each item of the irradiation protocol is important in achieving the desired effect, current tendencies are likely to establish dosimetry values to treat hypersensitivity, since they more closely represent the total energy delivered, regardless of differences in size of the irradiated areas.²⁴ Therefore, irradiation time should be calculated considering the power output of the laser device, the transversal sectional area of the laser tip, and the energy density established for the specific condition.

**DISCUSSION**

An overview of the literature on the effects of laser on hypersensitive dentin has been presented. However, appropriate irradiation parameters and efficacy of this therapy are variable. Since dentin hypersensitivity per se is a subjective condition, it is rather difficult to objectively assess symptoms, which partly accounts for the contradictory results found in the literature. Although most studies have reported an improvement of the painful condition, sometimes reaching over 90% positive results, they still lack consistency. Positive outcomes after laser irradiation vary for the same type of laser investigated, ranging from 37% to 93% for Nd:YAG, 50% to 98.6% for CO₂, 65% to 98% for GaAlAs, and 5% to 60% for He-Ne (Table 1).

<table>
<thead>
<tr>
<th>Laser</th>
<th>Irradiation parameters</th>
<th>Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>He-Ne</td>
<td>6 mW, 5 Hz for 1-3 min in pulsed mode or continuous wave mode for 2-5 min</td>
<td>5% to 100%</td>
</tr>
<tr>
<td>(λ 632.8nm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GaAlAs</td>
<td>30 mW, continuous wave mode for 0.5 to 3 min</td>
<td>58.5% to 100%</td>
</tr>
<tr>
<td>(λ 780nm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GaAlAs</td>
<td>20 mW-100 mW, continuous wave mode for 0.25-3 min</td>
<td>30% to 100%</td>
</tr>
<tr>
<td>(λ 830nm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GaAlAs</td>
<td>2.4 mW, 1.2 Hz for 2.5 min in pulsed mode</td>
<td>73.3% to 100%</td>
</tr>
<tr>
<td>(λ 900nm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nd:YAG</td>
<td>30 mJ-100 mJ/pulse, 10 Hz for 0.5 to 2 min in pulsed mode; 2W-10W for 0.1 to 1 s, repeated 5 to 20 times in continuous wave mode</td>
<td>51.5% to 100%</td>
</tr>
<tr>
<td>(λ 1,064nm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO₂</td>
<td>0.5W-1W, continuous wave mode for 0.5-5 s, repeated 6 to 10 times</td>
<td>50% to 100%</td>
</tr>
<tr>
<td>(λ 10,600nm)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The majority of the papers that positively relate laser therapy and pain reduction in hypersensitive dentin are uncontrolled trials. Randomized controlled trials are rare in studies of dentin hypersensitivity and laser. Additionally, split-mouth studies have been designed to assess the effectiveness of dentin desensitization. This is not the most adequate protocol when investigating dentin sensitivity, because it excludes the possibility of the carry-over effect, which means that the outcome of a specific treatment performed on one segment will affect outcomes in different areas of the mouth. Renton-Harper and Midda documented cases where, when particularly sensitive teeth were stimulated, the whole mouth became painful. Once these teeth were treated, the generalized pain disappeared. Since this factor may interfere in the outcome of a study, it is rather important to consider each patient as an individual entity instead of considering each tooth as a site for testing different products in the same person. Well-designed parallel and randomized controlled trials are essential to make evidence reliable.

Specials concern when deciding to use laser irradiation in the management of hypersensitive dentin are the precise irradiation parameters required for therapeutic laser effects and standardization of treatment protocols. Defined and appropriate parameters are extremely important to produce the effects desired. An investigation of the effects of CO₂ laser on dentin permeability may illustrate this factor. Pashley et al found that low CO₂ laser energy levels increased dentin permeability due to the partial loss of the smear layer. Intermediate energy irradiation resulted in crater formation and lack of uniform glazing, leaving the dentin surface porous with exposed underlying dentinal tubules, which also increased dentin permeability. High energy CO₂ laser irradiation produced complete glazing and sealing of the irradiated tubules, decreasing dentin permeability within the crater, but increasing the permeability of the pericrater region due to the removal of a 100-µm-wide halo of smear layer.

Different outcomes may be produced depending on the parameters employed. Thus, the question poses itself: is low-level laser therapy more effective than high-energy irradiation? Supporters of LLLT will argue that no adverse effects have been reported with the use of such therapy to treat hypersensitive teeth. In addition to the biological effect of increasing the potential of action of the pulp tissue, authors emphasize that low energy wavelengths produced by LLLT are safer to the pulp because they stimulate circulation and cellular activity. However, LLLT does not produce any changes in mineralized tooth substrate. Due to the individual differences observed in response to the laser therapy, additional sessions of LLLT may be necessary in order to obtain a positive result. Since low-level energy irradiation is mostly related to biostimulation and analgesia, it seems obvious that such effects are mainly temporary. The role of the “soft laser” as a therapeutic tool is a contentious issue. According to Wilder-Smith, clinical trials demonstrated no advantage in replacing conventional treatment of hypersensitive dentin with low-level laser therapy, despite its positive effect on patient attitude toward treatment. Contrasting results, however, have supported LLLT.

HLLT, on the other hand, may be a better option in the management of hypersensitive teeth, if appropriate parameters are maintained to prevent irreversible damage to the pulp. Since an increased number of tubules per unit area is observed in sensitive dentin, and tubule diameters are twice as wide when compared with non-sensitive teeth, lasers that act by blocking dentin tubules are more likely to provide long-term pain relief. When compared with conventional methods of desensitization, for example fluoridation of hypersensitive teeth, HLLT seems to produce rapid and lasting pain relief. Although the desensitization mechanisms produced by HLLT have been widely discussed, and image analysis has detected obliteration of tubules after laser irradiation, dentin modification in vitro does not necessarily guarantee desensitizing effects.

Additionally, the placebo effect must be taken into account, especially in situations where immediate relief is obtained with the laser therapy. A strong placebo effect has been described in hypersensitivity trials even when traditional techniques were used, which report clinical improvement of the painful condition even in groups in which no treatment was performed. Wilder-Smith reported that more positive effects were observed right after the first low-level laser irradiation, whereas cumulative effects and a gradual improvement from visit to visit should be expected. In double-blinded studies this may be particularly true, when information given at the beginning of the study may influence patients’ perception toward the treatment.

How long lasting are the desensitizing effects produced by lasers? The recurrence of sensitivity remains unclear, since most studies have not conducted long-term follow-ups. This may be explained by the difficulty in securing patients’ participation after treatment is finished, but it obviously leaves a question unanswered. Short-term follow-ups have demonstrated recurrence of pain symptoms after laser therapy. Even though recurrence might depend on the irradiation
methods and time elapsed after treatment, its mechanism is unknown. Recurrence of symptoms is likely if the analgesia and placebo effect are considered the main responsible factors for the positive results.

The most important issue concerning the effectiveness of treatment is the elimination of the causes related to cervical pain and the control of the primary causes of dental erosion and dentin exposure. As incredible as it may seem, this issue is usually not addressed by hypersensitivity publications. Modification of dietary habits is essential, since dietary acids contribute to dentin hypersensitivity and influence its treatment. Therefore, patients should be counseled about the quantity and frequency of acid intake and cautioned against brushing too soon after acid ingestion. Elimination of gastric regurgitation and establishment of proper oral hygiene techniques are important as well to promote therapy success. Ciaramicoli et al. observed that the removal of etiological factors in addition to Nd:YAG irradiation produced significantly lower pain scores. According to the Canadian Advisory Board on dentin hypersensitivity, the removal of predisposing factors and causes are essential for the diagnosis and management of this condition, otherwise treatment will be likely to provide only short-term success.

It becomes obvious that many aspects regarding laser therapy for hypersensitive teeth are still not clear. Further double-blind testing protocols are essential to clearly determine the effectiveness of laser in reducing pain and the duration of results. Since few studies compare laser outcomes with other desensitizing methods available, it is difficult to state that laser is a more effective tool in the management of this condition. Some papers demonstrated that laser irradiation results in higher pain relief than fluoridation or the use of a desensitizing agent, yet there were weaknesses in their study design. Additional studies comparing laser therapy with other treatment methods would be interesting from a cost-benefit point of view.

It is not the purpose of this paper to discredit laser therapy in treating dentin hypersensitivity, especially if one considers that this is only one of the many therapeutic applications of a laser device. However, dental professionals would be wise to critically appraise the quality of the research upon which they base their clinical decisions.

**FINAL CONSIDERATIONS**

The available evidence is not consistent, and thus cannot prove the efficacy of laser therapy in the management of hypersensitive dentin. Good quality randomized controlled trials are necessary to establish it as a reliable means of treating hypersensitive teeth.

**REFERENCES**


Contact address: José Carlos Pereira, Faculdade de Odontologia de Bauru, Universidade de São Paulo, Al. Octávio Pinheiro Brizolla, 9-75, Vila Universitária, Bauru SP 17044-100, Brazil. Tel: +55 (014) 3235-8214, Fax: +55 (014) 3223-7720. e-mail: jcper@fob.usp.br