

# Iodine Iontophoresis

Received.....7/6/02 Scientific Review.....7/30/02 IAOMT Board Review.....9/12/03 Reevaluation.....1/4/06	<h2 style="margin: 0;">Root Canals &amp; Cavitations</h2>	Approval.....9/12/03 Provisional Approval No Opinion No Approval
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**Explanation of IAOMT position:** “With the advent of dental ozone therapy, the use of iodine iontophoresis, although scientifically accurate, should take a back seat to ozone therapy” from the Author of this SR.

<b>Name of Scientific Review:</b> Iodine Iontophoresis
<b>Alternative name(s) of Scientific Review:</b>
<b>This Scientific Review is related to</b> Dentistry.
<b>This Scientific Review is a</b> Procedure.
<b>Do you have a financial interest in this SR?</b> No
<b>Purpose of the Scientific Review:</b> Reduction of infection of root canal treated teeth.
<b>Scientific Review History:</b> Iodine has been used for over 150 years in the treatment of wounds and prevention of infection
<b>A brief description of the Scientific Review:</b> Iodine is delivered into the soft tissue and boney area around a root canal treated tooth or teeth, to reduce or eliminate infection, utilizing a microcurrent device.
<p><b>A specific description of this Scientific Review:</b></p> <p><b>Materials:</b></p> <ol style="list-style-type: none"> <li>1) Microcurrent device (modified tens unit)</li> <li>2) Lead wire set                         <ol style="list-style-type: none"> <li>a. Pigtail electrode 2X2</li> <li>b. Electrodes: black lead / red lead</li> </ol> </li> <li>3) Losol Iodine (a biologically friendly form of iodine that is ammonium iodine derived from kelp and is in glycerine)</li> <li>4) Distilled water</li> <li>5) 2x2 gauze pads</li> <li>6) Skin wipes</li> </ol> <p><b>Settings:</b></p> <ul style="list-style-type: none"> <li>• Micro Plus Unit – open the lower front compartment and set the mA (microamperage) switch to the <b>up</b> position. The pulse duration is set at <b>3</b> seconds. The polarity is set to the right, indicating <b>negative</b>.</li> <li>• The front dial should be set to approximately <b>ten</b> (10) for frequency.</li> <li>• The upper dial will be gradually turned between <b>two</b> (2) and <b>three</b> (3) indicating approximately 500 microamps.</li> </ul> <p><b>Electrodes / Solution:</b> The black lead (positive electrode) will be attached to a self-adhesive electrode to the cheek opposite the tooth or quadrant to be treated. The red lead (negative electrode) will be constructed by stripping the wire of an adhesive electrode exposing one or two inches. The wires should be separated slightly so that one or two 2X2 gauze pad(s) may be wrapped around the bare wire. The wire wrapped electrode is soaked in a solution of 1-2 drops of iodine mixed into 2 ounces of distilled water, and placed against the palate or floor of the mouth depending upon maxillary or mandibular tooth or quadrant to be treated. Additional gauze pads may be used to prop the wire-wrapped pad against the palate or floor of the mouth.</p> <p><b>Treatment:</b></p> <ul style="list-style-type: none"> <li>• Treatment regime would start with a TOPAS (ToxicityPrescreening Assay) ALT test.</li> <li>• Treatment duration is <b>15</b> minutes per session for the involved tooth or quadrant.</li> <li>• Iodine Iontophoresis should be done no more than once in a 24 hur period.</li> <li>• Ideally treating three consecutive days and then retesting with the TOPAS test one week later, gives an indication of efficacy.</li> <li>• The procedure should be repeated weekly to monthly until the involved area stays in the low range of both levels of bacterial toxins and levels of inflammatory enzymes.</li> </ul> <p><b>Pre and Post-Operative Considerations:</b> Patient should drink an 8 ounce glass of water prior to the procedure. Dehydration</p>

may cause dizziness and other autonomic responses. An antioxidant such as coenzyme Q10 (100 mg), should be given to the patient **before and after** treatment.

**Indications:** Endodontic and Periodontal infections

**Contraindications:** Iodine sensitivity, pregnancy, sensitivity to electrode gel, patients with heart pacemakers, sensitivity to electrical current – histamine response, patients with beards, other unknown factors.

**Manufacturer(s):**

- MicroPlus microcurrent device – Biomedical Life Systems, Inc., Vista, CA, 92083, 800-726-8367
- Electrodes (2 inch round, 4/pkg 0.080 inch pin connector, 6 inch lead wire – LSI International, Overland Park, KS., 800-838-8727
- Losol iodine: 800-838-8727
- Pre and post skin wipes for electrical adhesive. – DynaMed Corp., 800-241-5578

With thanks to Peter Zilahy, DC

**Scientific Literature:**

- IODINE - Iodine was first isolated in the lab circa the 1780's. Edgar Cayce stated that the body needs only 4 elements in balance to sustain itself, and, in fact, if these 4 elements are present, the body can produce everything it needs: water, salt, soda, and iodine<sup>1</sup>. Iodine in the complex povidone-iodine or betadine, has been shown to be an effective antimicrobial in periodontal maintenance utilizing oral irrigation units<sup>2</sup>. The efficacy of wound care treatment with betadine shows in vitro the ability to kill microorganisms and decrease the severity of wound infection<sup>3</sup>.
- IONTOPHORESIS – An effective and painless method of delivering pharmaceutical agents, by enhancing the flux of ionic compounds across a membrane, with the application of an electric current. It has been used for years in medicine to treat conditions such as tennis elbow and carpal tunnel syndrome. Dentist have used it to desensitize teeth with fluoride<sup>4,5</sup>. Areas of consideration for iontophoresis are the type and action of the pharmacological agent as well as its pharmacokinetics. The optimal concentration of the pharmaceutical, amplitude of current, and duration of treatment must be considered<sup>6</sup>.

References:

1. Thomas, P (2002). Iodine, the missing element. Natural Awakenings. Mar. p 14-15.
2. Greenstein, G.(Nov 1999). Povidone-iodine's effect and role in the management of periodontal disease: a review. Journal of Periodontology, 70(11):1397-1405.
3. Fleischer, W, Reimer, K, (1997). Povidone-iodine in antiseptics: state of the art. (Review). Dermatology, 195 suppl 2:3-9.
4. Sens,DA, Simmons, MA,and Spicer, SS, The analysis of human sweat proteins by isoelectric focusing. Pediatric Res., 19,8,873-878, 1985.
5. Maloney, JM, Bezzant, JL, Stephan, RL, Petelenz, T. Iontophoretic Administration of Local Anesthesia in Office Practice, J Dermatol Surg Oncol, 18,937-940, 1992.
6. Costello, CT, Jeske, AH, (1995),Iontophoresis: applications in transdermal medication delivery. Physical Therapy, 75(6):554-563.

**Legal Aspects of this Scientific Review:** See contraindications above.

**Informed Consent:** recommended due to the fact that Iodine Iontophoresis is not used routinely as presented.

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