



The therapeutic use of low intensity laser (LLLT) in some diseases and its relation to the performance in speech therapy

O uso terapêutico do LASER de Baixa Intensidade (LBI) em algumas patologias e sua relação com a atuação na Fonoaudiologia

El uso terapéutico de LÁSER de Baja Intensidad (LBI) en algunas patologías y su relación con la actuación en Fonoaudiología

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Abstract

The use of Laser Therapy of Low Intensity (LBI) or Low Level Laser Therapy (LLLT), is multidisciplinary, and is used by many professionals: doctors, dentists, physiotherapists, nurses, physicists, biologists, engineers, etc. The Speech Therapy begins to awaken the interest in joining this group of professionals, with a totally therapeutic use, non-invasive, no toxic side effects that adds to the therapeutic work and establishes an excellent rehabilitation prognosis. Therefore, we aimed to collect some research papers that address the physical and biochemical fundamentals of laser light interaction with the living biological tissue and its therapeutic applicability in health specialties where we also find the work of Speech Therapy. For this, we selected some pathology relating the use of LLLT: temporomandibular disorders (TMD), facial palsy, dysphagia by motor dysfunction, tissue healing including the mammillary fissures responsible for abandonment of breastfeeding. In the scope of the conditions, the action of the LASER will be described and its effect on biomodulator processes: inflammatory, nociceptive, scarring, edematous, nerve and muscle repair. We conclude that LLLT is a technological breakthrough and an important tool

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in different fields, meaning a major evolution in health procedures, even in speech therapy. It is essential to note that the articles present lack of standardization in dosimetry and we suggest that further studies are developed with the standardization of the documents World Association for Laser Therapy (WALT).

Keywords: Low-level light therapy; Temporomandibular joint disorders; Facial paralysis; Deglutition disorders; Breast feeding.

Resumo

O uso da luz LASER Terapêutico de Baixa Intensidade (LBI) ou Low Level Laser Therapy (LLLT), é multidisciplinar, sendo este utilizado por vários profissionais: médicos, dentistas, fisioterapeutas, enfermeiros, físicos, biólogos, engenheiros, etc. A Fonoaudiologia começa a despertar o interesse em integrar esse grupo de profissionais, sendo um recurso totalmente terapêutico, não invasivo, sem efeitos tóxicos e colaterais que agrega no trabalho terapêutico e estabelece um prognóstico excelente de reabilitação. Por esse motivo, objetivou-se coletar alguns artigos científicos que abordam os fundamentos físicos e bioquímicos da interação da luz do LASER com o tecido biológico vivo e sua aplicabilidade terapêutica nas especialidades da saúde onde encontramos também a atuação da Fonoaudiologia. Para isso foram selecionadas algumas patologias relacionando-as ao uso do LBI: disfunção temporomandibular (DTM), paralisia facial, disfagias por disfunção motora, cicatrização tecidual incluindo as fissuras mamilares, principal responsável pelo abandono do aleitamento materno. No escopo das patologias, será descrita a ação do LASER e seu efeito biomodulador nos processos: inflamatórios, algícos, cicatriciais, edematosos, de reparação nervosa e muscular. Conclui-se que o LBI é um avanço tecnológico e uma importante ferramenta terapêutica em campos distintos, significando uma grande evolução em toda a área da saúde, inclusive na Fonoaudiologia. É fundamental destacar que os artigos apresentam falta de padronização na dosimetria e sugere-se que próximos estudos sejam elaborados com a padronização dos documentos da World Association for Laser Therapy (WALT).

Palavras-chave: Terapia com luz de baixa Intensidade; Transtornos da articulação temporomandibular; Paralisia facial, Transtornos da deglutição; Aleitamento materno.

Resumen

El uso de la luz LÁSER Terapêutico de Baja Intensidad (LBI) o Low Level Laser Therapy (LLLT), es multidisciplinar, utilizado por varios profesionales: médicos, dentistas, fisioterapeutas, enfermeros, biólogos, físicos, ingenieros, etc. En la Fonoaudiología también se empieza a tener interés en formar parte de este grupo de profesionales, para el uso de ese recurso terapêutico, sin efectos secundarios, tóxicos y colaterales que se suma al trabajo terapêutico con excelente pronóstico de rehabilitación. Por ese motivo se recogieron artículos científicos que abordan los fundamentos físicos y bioquímicos de la interacción de la luz láser con el tejido biológico vivo y su aplicabilidad terapêutica en especialidades de la salud, donde se encuentra también la actuación Fonoaudiológica. Para tanto se seleccionaron algunas patologias relacionadas al uso de LBI: disfunción temporomandibular (DTM), parálisis facial, disfagia por disfunción motora, cicatrización del tejido incluyendo fisuras mamilares, principal responsable del abandono de la lactancia materna. En el ámbito de las patologias, se describió la acción del LASER y su efecto biomodulador el los procesos: inflamatorios, nociceptivos, cicatrización, edematosos, de reparación nerviosa y muscular. Se concluyó que el LBI es un avance tecnológico y una importante herramienta terapêutica en diferentes campos, significado una evolución importante en toda la salud incluso en la Fonoaudiología. Es importante tener en cuenta que los artículos presentes falta de estandarización en la dosimetría y se sugiere que más estudios se realizen con la estandarización de los documentos de la World Association for Laser Therapy (WALT).

Palabras clave: Terapia por luz de baja intensidad; Transtornos de la articulación temporomandibular; Parálisis facial; Transtornos de deglución; Lactancia materna.



Introduction

The term LASER, acronym of the English term Light Amplification by Stimulated Emission of Radiation, consists of an electromagnetic radiation, unidirectional, monochromatic, with narrow beam, parallel propagation (collimation) and with the Photon waves in phase (coherence).

In this study, we will mention the use of Low Level Laser Therapy (LLLT), already described in scientific articles in Medicine, Dentistry and Physiotherapy in pathologies that are also of interest in Speech, Language and Hearing Sciences (temporomandibular disorder, oropharyngeal dysphagia, tissue scarring caused by lesions in the oral cavity or breasts during breastfeeding).

LBT therapy is routinely used during medical, dental and physiotherapeutic treatments, as it has an excellent analgesic, anti-inflammatory and cicatrizing action, as well as facilitates the therapeutic intervention as early as possible, promoting an excellent prognosis to the patient.

In order to be considered a LLLT, the device must have a power below 500 mW, it can be operated in continuous mode (CW) or pulsed (Puls), with a dose lower than 35 J / cm³, in this way it is classified as a therapeutic resource modulator of biological processes by biostimulation or bioinhibition, according to the application form.

It is important to highlight that despite all the above-mentioned effects, LLLT has no potential to produce deleterious effects on tissues or the biological system, is characterized as a therapeutic and facilitative resource during the patient's rehabilitation process and often becomes the first choice resource in several areas of health care.

Some important considerations will be described for understanding LLLT, such as physical principles: mechanism of action, therapeutic effects, and the use of free radicals. In the sequence, it will be briefly discussed some pathologies and their relation with the use of LLLT already reported in scientific articles, with its due therapeutic effect.

The data collection was carried out by means of searches to bibliographical references of relevant studies in the following databases: Online Medical Literature Analysis and Retrieval System Online (MEDLINE), Latin American and Caribbean Literature in Health Sciences (LILACS), Scientific Electronic Library (SciELO) and other literary references related to the subject, using the descriptors

“low intensity light therapy, temporomandibular joint disorders, facial paralysis, swallowing disorders, breastfeeding” in English and Portuguese starting in the year of 2010. Considering that this is a literature review and does not involve research with humans and animals, the present study was not submitted to evaluation by the Research Ethics Committee, according to resolution CNS 466/12.

1- Basic characteristics of the physical principles of LLLT:

- A) emits an electromagnetic wave of a single wavelength, in other words, it can emit and select the length (λ) that is the determining factor of the interaction of the LASER with the matter. With regard to length, the LASER can be red (606 nm) or infrared (808 nm);
- B) Coherence (synchrony);
- C) Collimation (single direction and parallel). The unit may be in Continuous (CW) or Pulsed (Puls) type.

The mode of application of LLLT in the biological tissue can be by contact (precisely reaching the tissue to be treated) or not contact. By focusing on a tissue, LLLT light can undergo absorption (wavelength dependent), reflection (return to the medium), diffusion (non-absorbing scattering) and transmission (it crosses the tissue without being attenuated).

The action of the LASER in the body, that is, the interaction of radiation with matter is general and has biological effects. Especially in living beings, such action is complex and depends on the dose, energy, type of radiation, tissue type and organ affected, as some tissues are more sensitive than others (for example, lymphatic tissue is more sensitive than the muscular).

In the case of LLLT the action in the tissue is non-ionizing, that is, it has no power to mobilize electrons from the stimulated molecules. Instead, it only excites or activates such electrons precisely because it has low power.

In this way, this type of radiation is used for therapeutic purposes and for that purpose to be achieved, the wavelengths commonly used are red and infrared.



As a general rule, the longer the wavelength, the greater the penetration into the tissue. This understanding starts from a principle based on the energy that carries the photon, that is, the less energetic the light, the deeper will be its absorption and the more energetic the photon of a light, the more superficial its absorption.

The therapeutic effect is therefore due to the action on the cells that are influenced and activated by photophysical, photochemical and photobiological effects on the tissues that undergo irradiation.

It is important to note that LLLT is used as an adjuvant, alternative and non-invasive treatment, which assists in the acceleration of wound healing processes, the modulation of inflammation or the favoring of analgesia.

2- The mechanism of action

- A) The LASER is applied over the tissue, with determined wave, power, time, energy and radiant exposure, always according to the characteristics of the tissue and the problem involved;
- B) The stimulus is absorbed by the tissue initially at the cellular level, since the cells have chromophores (or photoreceptors), which may be enzymes, cell membrane molecules or any other structure that has affinity for the length of the applied wave (red or infrared) ;
- C) When absorbed in the cell, it is also absorbed in the atom, where the orbiting of the electrons occurs, promoting excitation in the same that, when they return to the previous state they release ATP, which will be used by the cells of this tissue for the development of their functions;
- D) As a consequence, there are biochemical reactions that favor the desired biological response (anti-inflammatory, analgesic, cicatricial, anti-oedematous, nerve / muscular and anti-bactericidal repair) and allows cellular proliferation and protein synthesis.

3- Therapeutic effects of LLLT

LASER can generate the following therapeutic effects: analgesic effect, anti-inflammatory effect, anti-oedematous effect and cicatrizing effect.

- A) Analgesic effect - Radiation acts from the peripheral receptors to the CNS, promoting the relief of pain, especially in cases of chronic pain, by stimulating the release of beta-endorphins;
- B) Anti-inflammatory effect - reduction of inflammation by stimuli of reabsorption of exudates

and elimination of allergic substances. In addition, there is interference in the synthesis of prostaglandins that lead to the reduction of inflammation, as well as action in the microcirculation, which accelerates, reduces edema and eliminates the accumulation of catabolites. Finally, there are effects on the reduction of oxygen and glucose consumption in the cells;

- C) Anti-oedematous effect - reduction of edema occurs by stimulating microcirculation, which favors plasma drainage, as well as fibrinolytic action;
- D) Healing effect - by increased production and release of ATP in cells, there is stimulation to mitosis, metabolism, local vasodilation occurs and acceleration of tissue repair. In addition, it also influences the cellular proliferation of the endothelium, contributing to angiogenesis and, consequently, the acceleration of wound repair;
- E) Repair of muscle injury - Muscle injury promotes damage to the cellular structure of the tissue, impairing its function. These changes in cell structure promote the process of inflammation in muscle tissue, which is basically composed of three phases: degeneration, repair and remodeling. These phases present specific and fundamental characteristics for the adequate restoration of the structure and function of injured muscle tissue;
- F) Regeneration of peripheral nerves - Peripheral nerves are a constant target of traumatic injuries that can result in motor deficits over time that alter their mechanical and neurochemical properties, as well as may provide irreversible complications;
- G) Antibacterial effect: Photodynamic therapy (PDT) is a phototherapy modality that uses red LASER associated with a photosensitizer (or dye, which is usually a 0.005% methylene blue solution), and oxygen to promote antimicrobial action and favor the cure of pathologies such as herpes, candidiasis and any superficial localized infections.

PDT is a therapeutic modality that has also been used in antimicrobial control (bactericide of dermatological processes).

In LLLT there are two features used in the red wavelength (660nm), ILIB (Intravascular Laser Irradiation of Blood modified) and PDT photodynamic therapy.



4- The ILIB technique and the fight against free radicals:

ILIB Russian technique (Modified) consists of continuous, direct, noninvasive application of red therapeutic laser (660nm) in the radial artery region, continuously.

The absorption of red light through the blood causes an increase in metabolism and synthesis of the major physiological regulatory protein of the body's oxidative system (Superoxide dismutase). This enzyme inhibits the action of reactive oxygen species (ROS), leading to the protection of cells against mutations (cancer prevention) and aging, thus fighting free radicals that are so harmful to health²⁰.

ILIB also interferes under the cascade of arachidonic acid (anti-inflammatory effects) and increased production of prostacyclins (anti-platelet aggregation) that provides a more fluid character to the blood, making vascular problems more difficult.

It is important to note, after the above clarifications, that LLLT has no potential to produce deleterious effects on tissues or the biological system, is characterized as a therapeutic and facilitative resource during the patient's rehabilitation process, often becomes the first resource Choice in several areas of health.

5 - LLLT safety standards:

There are some safety standards for using LLLT. The LASER should:

- A) not be used in pregnant women: although there are no studies demonstrating side effects;
- B) not be used in tissues or wounds suspected of malignant tumors;
- C) not be used in the eye region, under risk of injury and permanent damage to the retina, therefore it is mandatory to use eye protection to the patient and to the professional;
- D) be used following biosafety rules to avoid contamination;
- E) used being obligatory the use of eye protection to the patient and to the professional, it is suggested the placement of warning plate on this aspect.

The LASER light does not have yet an accuracy in the dosimetry, which is nothing more than the dose required to obtain the desired final effect, since it depends on the physical variables cited and also on the clinical variables: type of disease,

number of points and applications, mode of application, frequency of application, concomitant diseases and the variables of each patient where the skin phototype and evolutionary stage of the disease are highlighted, as well as the type of irradiated tissue¹.

Aiming to advance the discussion on dosimetry in LLLT, scientific communities are taking initiatives in developing consensus on dosimetry, as in the 2004 World Association for Laser Therapy (WALT) documents available on the internet at the workshop "Dosimetry in Low-intensity Laser Therapy" of Incor, in 2007.

In view of the above, the objective of this study was to identify the use and efficacy of LLLT in pathologies that are also found in speech, language and audiology practice through a literature review.

Description

THE USE OF LOW INTENSITY LASER THERAPY IN SPEECH, LANGUAGE AND HEARING SCIENCES

As for the Speech, Language and Hearing pathologies of the area of Orofacial Motricity, the highlights were: temporomandibular disorder, oropharyngeal dysphagia, facial paralysis and pathologies that require tissue healing (prostheses / implants, postoperative orthognathic surgery and nipple fissures). Briefly, each one of them and the possibilities of using LLLT will be described, starting from the mechanism of action and therapeutic effects already used in other areas of health.

Many of the patients seen in Speech, Language and Hearing therapy can benefit from ancillary techniques, such as the use of electrostimulation, elastic bandage, motor points on the face, among others. Likewise, LLLT may be resource in the adjuvant treatment of traditional Speech, Language and Hearing therapy, since it is neither invasive nor painful, it has excellent acceptance by patients, including in pediatrics, besides not having risks to the user.

A) Temporomandibular disorder:

It is the temporomandibular joint dysfunction, usually accompanied by pain, which may become chronic during the evolution of the pathology. It may be accompanied by headache, neck pain, trismus, difficulties in speech and chewing, sensation of atrial fullness, tinnitus and all these symptoms reduce the quality of life of the affected individual.



Especially in the field of Speech, Language and Hearing Sciences, dysfunctions of muscular origin are prominent and are often associated with muscle tension, bruxism, and stress, among others.

The Speech, Language and Hearing intervention aims to reduce pain, muscle tension, rescue the opening range of oral cavity, as well as the mandibular movements required for oral functions, so that the patient can perform them without tension, in a natural and balanced way.

Just as electrical stimulation with TENS current favors analgesia and elastic bandaging muscle relaxation, LLLT can assist the Speech, Language and Hearing therapist in the rehabilitation of patients with TMD.

With the use of red LASER, which has analgesic and anti-inflammatory action, it is possible to obtain reduction or elimination of the pain of these patients, who have frequent and often limiting discomfort.

For systemic global rebalancing of the organism, red LASER in the ILIB mode, with application in the radial artery could favor a systemic effect due to metabolic alterations not only in the irradiation site, but also in areas that are more distant due to the fact that substances are released into the bloodstream, vasodilation occurs and blood flow increases.

With the use of infrared LASER, it would be possible to reduce edema and improve muscular trophism, along with myofunctional exercises.

B) Dysphagia:

Dysphagia, which are swallowing difficulties that involve the passage of food from the mouth to the stomach, more specifically the oropharyngeal dysphagia, which comprises swallowing in the oral, pharyngeal and oral preparatory phase, require the Speech, Language and hearing therapist to understand the patient's general condition, pathologies knowledge and techniques of muscular and functional rehabilitation of the airway protection to favor, as far as possible, the occurrence of safe and effective feeding.

Many patients with dysphagia have odynophagia, gastric problems, oral diseases that hinder the therapeutic process (candidiasis, herpes, gingivitis, among others), edema, tonus alterations and mobility of the muscles responsible for the preparation and boosting of the bolus of food.

LLLT could assist the Speech, Language and Hearing therapist in these cases with the use of red LASER for analgesia, anti-inflammatory and antimicrobial action.

The red LASER in the ILIB mode, applied to the radial artery has a systemic effect and can be safely applied to the patient who is often debilitated. With infrared LASER, it is possible to stimulate the musculature that, combined with myofunctional exercises, favors muscle toning or relaxation. It is also possible to use photodynamic therapy to stimulate the acceleration of the body's own fight against fungi, bacteria and inflammation common to these patients.

C) Facial palsy

Facial paralysis is a syndrome, a manifestation of several types of pathologies and is multifactorial, depending on the location of the lesion and can be classified as central or peripheral. The affected patient has limitations in facial muscle contraction, sensitivity in the anterior two thirds of the tongue, salivation, tearing and the impact can be noticed not only in facial expression, but in speech, feeding and swallowing.

The facial nerve has about 70% of its myelinated fibers for innervation of facial muscles and 30% of sensory and secretory fibers. An injury to this nerve has great repercussions for the contraction of the facial muscles and, consequently, for their functions, as well as for the self-esteem of the affected individual.

Rehabilitation will always depend on the type of injury and the Speech, Language and Hearing therapist will act to recover, as much as possible, the muscular movements and sensitivity for the individual to resume his functions, especially facial expression, so important for human communication.

Speech, Language and Hearing therapy intervention aims to promote muscle contraction, reduce synkinesis, increase strength and endurance, improve sensitivity and rehabilitate the functions of the stomatognathic system through stretching exercises, relaxation massages, inducers, toners, isometric exercises, isotonic exercises and isokinetics, biofeedback, use of electrostimulation with TENS current, elastic bandage, among other techniques.

The intervention can be potentialized by the LLLT application, since it promotes the accelera-



tion of nerve regeneration, as it acts as a cellular stimulator and modulator of connective tissue, with the use of infrared LASER to favor trophism and regeneration of the facial nerve.

D) Tissue repair in oral dysfunctions due to aggressions, breast surgeries and fissures in breastfeeding:

In the work with Orofacial Motricity it is common the attendance to patients with oral dysfunctions resulting from aggressions, such as the use of dental prostheses and implants and tissue healing processes, such as in cases of oral cancer surgery, orthognathic surgery, oral surgeries and inflammatory processes.

Regarding orthognathic surgery, which includes several surgical procedures for patients with dentofacial deformities, such as retrognathism, prognathism, mandibular asymmetries, temporomandibular joint deviations, skeletal class II, mandibular dentoalveolar retroposition, skeletal discrepancies or more severe asymmetries, the Speech, Language and Hearing therapist acts in the whole process, from the preoperative to the rehabilitation of the functions from the new form acquired after the surgery.

'The Speech, Language and Hearing Sciences intervention includes the favoring of the muscular, postural and functional rehabilitation for the patient, in order to avoid relapses and improve oral functions.

Many patients have local pain, edema, excessive masticatory muscle tension, headache, and postoperative TMJ pain. The Speech, Language and Hearing therapist will work to reduce pain, promote muscle relaxation or toning (according to each case), reduce trismus, improve mandibular mobility, and improve all functions of the stomatognathic system.

In this case, it is possible to use, along with myofunctional therapy, red LASER to promote analgesia and reduce edema. Infrared LASER can be used to improve muscular trophism and reduce paresthesia.

The Speech, Language and Hearing therapist often ends up not being able to act due to the lesion and, so, there is a loss of prognosis for the patient. The intervention of the LLLT at that moment would be another tool. In multidisciplinary teams, trained professionals apply LLLT according to the need and the patient benefits from its therapeutic

effects, thus facilitating other interventions specific to each area. These lesions, after due diagnosis and medical or dental release, can also benefit from the Photodynamic Therapy (PDT) technique, which is scientifically studied and effective for antimicrobial promotion.

It is important to stress that even if the Speech, Language and Hearing therapist does not act directly on these surgeries and injuries caused, they can compromise the functions and can delay the rehabilitation. The medical conduct is maintained, using drugs according to the case, but it is possible to stimulate the biological process of natural antimicrobial combat of the organism, without going beyond the limits of the profession and without being invasive.

The Speech, Language and Hearing Sciences works in breastfeeding with excellence and thus guarantees very effective guidelines for mothers, as well as performing interventions so that there is no interruption of this process.

The process of breastfeeding, although natural from the biological point of view, is socioculturally determined and suffers many influences. Women need support, guidance and practical assistance to establish and continue breastfeeding, since it is an isolated act that has the potential to reduce mortality and morbidity.

Speech, Language and Hearing Sciences therapy deals with the correction of the handle and position, techniques of breastfeeding, orientation of milk extraction frequently and unblocking of ducts.

Initially, both mother and baby may present difficulties that the trained therapist can solve: nipple fissures, engorgement, mastitis, persistent pain without breast alteration, candidiasis, duct blockage, Raynaud's phenomenon, reduced production, hyperlactation, excessive tension of the infant's orofacial muscles, excessive muscle flaccidity, oral dysfunctions, among others

The Speech, Language and Hearing Sciences breastfeeding consultant intervene in all the problems of the mother and the baby, although in some of the situations it is necessary to be referred for diagnosis and conduct (often medication), there are techniques to help the dyad and to promote the continuity of breastfeeding. It is noteworthy that the medication prescribed by the physician, in these cases, does not interfere in the action of LLLT at the cellular level and vice versa.

In the case of problems with the mother, the presence of pain is very common, be it physical pain or referred pain without injury. Often with eclampsia, edema occurs, with the incorrect handle, the nipple fissure occurs, with inadequate milk extraction, engorgement, mastitis, abscess, and duct block.

The use of LLLT in breastfeeding may be the best known, especially in nipple fissures; However, there are several other uses in assisting the mother and the baby that are used in multidisciplinary care.

It is also possible for the woman to present fungal and bacterial contamination in the breast and in all situations LLLT can be used together with the techniques of clinical management of lactation.

In these cases, red LASER promotes analgesia, accelerates healing, and has antimicrobial action. It is possible to use photodynamic therapy for cases of candidiasis and ILIB in the radial artery to promote the systemic balance of the woman's organism.

Infrared LASER favors the elimination of edema and can even be used in axillary lymph nodes facilitating maneuvers of emptying of the breast.

In the case of the infant, some oral dysfunctions are common and may impede the breastfeeding process: excessive lip, tongue, buccinators, mandibular locking, masseter tension, tongue retraction, reduction of oral reflexes, among others.

Along with massages and maneuvers for muscle enhancement, suctioning, swallowing and coordination between suction / deglutition / respiration, it is possible to use red LASER for analgesia in cases of excessive tension and infrared for the favor of muscular trophism, both in cases of reduction in muscle tone increase, according to the exercises, massages and touches performed, as well as the desired goals.

In addition, it is possible to use photodynamic therapy with antimicrobial action in cases of oral candidiasis of the infant, concomitantly with the use of medication prescribed by the physician.

Final considerations

During the review, it was verified that LLLT is routinely used during medical, dental and physiotherapeutic treatments in order to reduce pain, stimulate tissue healing and regression of edema, with consequent anti-inflammatory and antimicrobial action, favoring tissue biostimulation and nervous repair in areas of interest also

in Speech, Language and Hearing Sciences with positive effects.

The Speech, Language and Hearing pathologist is interested in integrating the group of professionals who use this therapeutic resource. Speech, Language and Hearing Sciences have taken a positive path when it has obtained the opinion for the use of electrostimulation, elastic bandage and it is now realized that the use of LLLT tends to follow the same path that will bring benefits in therapeutic practices. It is evident that certain actions must be preceded by the use of the technique and one of them is the training of the therapist for the use, establishing the workload and the teachers' collaborators to minister this technique.

New studies are needed to better understand the influence of LLLT on pathological processes and it is observed how much this therapeutic technique has been used in areas also of interest in Speech, Language and Hearing Sciences.

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