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ESSAY

Possibilities in the application of electrostimulation in orofacial motricity

Bruno T. L. Guimarães[1]*; Juliana R. Lepri[1]

1. *Free Lancer*

* *Corresponding author.*
E-mail address: *brunotlguimaraes@gmail.com*

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Abstract

In Orofacial Motor Function, there are many possibilities for using electrostimulation, including analgesia, sensory activation, motor activation, relaxation, motor contraction, low frequency and low-intensity muscle stretching, in post-orthognathic surgical cases, temporomandibular disor-ders (TMD), trismus, bruxism, facial aesthetics, snoring and sleep apnea, and cases of muscular hypotonia or intra or extra-oral hypertonia. Therefore, it is necessary to have a good under-standing of electrostimulation, including knowledge of electrophysiology and clearly defining how to use the currents and how to associate them with functional exercises.

INTRODUCTION

Electricity is one of the basic forms of energy in the field of physics and can produce biolog-ical effects. The electric currents used for electrotherapy are classified into three types: di-rect current, alternating current, and pulsed current. Direct current is unidirectional, tradi-tionally known as galvanic current despite the term being obsolete. Alternating current is characterized by a continuous flow of charges in two directions. Thus, in one cycle, one electrode is positive, and in the next cycle, the same electrode becomes negative. An exam-ple of this type of current is interferential therapy, used to treat pain. Pulsed current is characterized by a discontinuous flow of electric charges in one or two directions. A series of waves is separated from another by an interval in which the current is zero. Examples of this type of current include transcutaneous electrical nerve stimulation (TENS) for pain treatment and functional electrical stimulation (FES) for muscle conditioning.
TENS therapy consists of a low-voltage, pulsed electrical current in the form of a biphasic waveform, symmetrical or asymmetrical, balanced with a positive square-phase and a nega-tive peak. This characteristic enables the stimulation of nerve receptors and has a direct current component equal to zero, meaning that the areas under the positive and negative waves are equal, producing no polar effects. When applied to the skin surface through elec-trodes, its goal is to relax hyperactive muscles and provide pain relief.
Electrical stimulation in TENS mode can occur in different ways: sub sensory (usually with a frequency equal to or below 5 Hz and amplitude below 5 mA); sensory (frequency equal to or above 50 Hz below 150 Hz, generating a mild sensation of paresthesia, known as conven-tional TENS); motor level (usually with a frequency below 20 Hz, being the classical mode between 2 and 5 Hz, producing a mild vibration sensation without excessive contractions, known as acupuncture TENS); and noxious level at any frequency and intensity above the pa-tient's comfort threshold.
Electrical stimulation can be used to improve circulation by increasing peripheral vascular perfusion through one or two mechanisms: reflexively, by activating the autonomic nerves, or by muscle contraction [1].

TENS therapy consists, basically, of a low-voltage, pulsed electrical current in the form of a biphasic wave, symmetric or asymmetric, balanced with a positive square wave and a nega-tive peak. This characteristic allows for the stimulation of nerve receptors and has a direct current component equal to zero, meaning that the areas under the positive and negative waves are equal, not producing polar effects. When applied to the skin surface through electrodes, its objective is to relax hyperactive muscles and promote pain relief [1-4]. Elec-trical stimulation in TENS mode can occur in the following forms: sub sensory (usually with a frequency equal to or below 5 Hz and amplitude below 5 mA); sensory (frequency equal to or above 50 Hz, below 150 Hz, generating a slight sensation of paresthesia, called conven-tional TENS); motor level (usually with a frequency below 20 Hz, being the classic mode be-tween 2 and 5 Hz, producing a slight sensation of vibration without excessive contractions, called acupunctural TENS); and har-

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mful level at any frequency and intensity above the pa-tient's comfort threshold. Electrical stimulation can be used to improve circulation by in-creasing peripheral vascular perfusion through one or two mechanisms: reflexively, by acti-vating autonomic nerves or through muscle contraction [1].

The basis of the theory for electro analgesia was published in 1965, through the gate control theory. This theory proposes that there is a gate in the dorsal horn of the spinal cord that regulates the entry of nociceptive input through small diameter afferent nerve fibers. This can be counterbalanced, or even canceled, by tactile, pressure, and/or electrical stimulation on large diameter fibers, resulting in inhibition of nociceptive stimuli to spinal, supraspinal structures, and the gate can be effectively closed. Therefore, TENS would act involving pe-ripheral and central mechanisms [4].

The frequency of TENS application ranges from 1 to 150 Hz, within the biological spectrum of electrotherapy application from 1 to 250 Hz. As for pulse duration, it varies from 20 to 250 us. Parameters that combine high frequency modulation (80 to 150 Hz) and lower pulse du-ration (50 to 100 us) allow for the stimulation of highly myelinated and large diameter nerve fibers, such as A-alpha and A-beta fibers, triggering repeated action potentials for acute pain. On the other hand, lower frequencies (1 to 10 Hz) and higher pulse durations (100 to 600 us) provide stimulation of A-delta and C fibers. This variation in parameters and its neurophysio-logical effect justify the use of TENS for chronic pain relief. High frequency TENS operates through the gate control theory, described by Melzack and Wall (1965), while low frequency TENS acts through the release of endogenous [5] opioids and by using non-tetanic frequen-cies and intensity at the motor threshold, promoting a muscular pumping effect, reducing the accumulation of metabolic waste resulting from tissue ischemia.

Bassanta [6] mentions Jankelson (1979) who proposed an approach to occlusal dysfunctions, establishing as the main condition the determination of the rest position as a starting point. This theory consists of relaxing the muscular system, prior to any type of treatment through TENS. Varieties of therapies for the treatment of myofascial dysfunctions highlight TENS as a method that provides relaxation of the chewing musculature. Both high and low frequency applications produce analgesic effects in more than 50% of the pain. The use of high fre-quency produces faster myorelaxant and analgesic effects, making them less noticeable to the unpleasant sensation of low frequency stimulation. The results regarding the analysis of FFO (Functional Free Space), evaluated electrognatographically, before and after TENS, showed that there was a muscular relaxation whose consequence was a generalized in-crease in FFO. In fact, the difference between the records obtained before (mean 1.01 mm) and after TENS (mean 1.86 mm) was -0.85 mm. The statistical analysis of the data obtained demonstrated that this difference is quite significant [6]. Transcutaneous electrical nerve stimulation can provide numerous benefits when indicated in the control of oncological pain. With the decrease in pain, the patient increases their functional capacity, can participate in physical exercise programs, and improve their quality of life. It is a non-invasive and easily applicable resource, which can be used in patients of different age groups with possibilities of inducing prolonged analgesia since TENS provides relief to patients with postoperative pain and pain associated with acute trauma. When adjusting the intensity, muscle contrac-tions should be avoided, seeking to obtain hypoesthesia or paresthesia in the treated region, adjusting the device according to the patient's sensitivity [7].

The electrodes can have round, square or rectangular shapes and different sizes. The elec-trode shape and size should be chosen according to the area to be stimulated. The adher-ence of the electrodes to the skin should be well done and checked periodically during the procedure. If the electrode adherence is lost, the current density increases on the points of the electrodes that still maintain contact with the skin, which can cause localized burns and pain. Before attaching the electrodes, it is necessary to clean the skin in order to remove insulating substances (such as fat) that may be on it. The more cleansed the skin is, the lower the resistance to the passage of current and the lower the intensity used [1].

There are two forms of stimulation: monopolar and bipolar. In monopolar, the electrodes are of different sizes, which implies higher current density always for the smaller electrode, while in bipolar, the electrodes are of equal sizes, resulting in equal current density for both electrodes [1-5, 8].

The stimulation applied to improve muscle performance in terms of muscle strength is dif-ferent from the characteristics used to produce analgesia and muscle relaxation. To restore and enhance the quality of muscular contraction aimed at increasing strength, neuromuscu-lar electrical stimulation (NMES) is used. Electrical stimulation applied through the skin sur-face on a part of the intact neuromuscular system can evoke an action potential in the mus-cle or nerve fiber that is identical to those generated physiologically [2]. After neuromuscu-lar electrical stimulation, voluntary muscle activation improves, in the same way that muscle performance improves after voluntary muscle contraction exercises. NMES not only in-creases motor recruitment when followed by voluntary activity, but it can also decrease the performance time, so that muscle activity occurs more quickly after the nervous system recognizes the need to act [1,2].

Functional Electrical Stimulation (FES) is characterized by being an intervention in which electrical impulses are applied to peripheral nerves in order to activate motor neurons and muscles to improve or restore function. There are several theoretical justifications for the use of FES in rehabilitation. Some authors support the Sensorimotor Integration Theory (TIS), in which sensory pathways are sensitized by peripheral proprioceptive feedback caused by segment movement, temporarily activating the sensorimotor cortex. Others consider that receiving stimuli in the affected cortex can help

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organize the internal movement model of the affected upper limb and increase ipsilateral cortical activation of the primary soma-tosensory cortex. The use of FES through surface stimulation easily elicits a contraction. Physiologically, during muscle contraction, small slow-twitch motor units are activated first, allowing for greater control during contraction. Therefore, the physiological sequence of motor unit recruitment is asynchronous. In FES, larger motor units found more superficially are recruited first, due to their larger axon diameter and lower excitability threshold. This synchronous recruitment results in the generation of high-tension contraction, but with sig-nificant fatigue, resulting in vigorous but less refined movement. Parameters such as fre-quency, pulse duration, and amplitude are closely linked to the electro-physiological char-acteristics of nerve fibers. The combination of pulse duration and amplitude produces dif-ferent responses in sensory, motor, and nociceptive fibers, according to the depolarization threshold of each fiber. Although the use of FES is widely adopted in clinical practice, there is no consensus in the literature regarding the choice of main stimulation parameters [9].
Sensory feedback can be an important modulating agent during the execution of voluntary motor action, influencing individuals' functional performance. During the application of Functional Electrical Stimulation (FES), there is an integration of the sensory and motor cor-tex, activating both proprioceptive afferent pathways and motor efferent pathways, pro-moting muscle contraction, which can contribute to the activation of compromised neural pathways. In addition, the muscle contractions induced by FES can induce changes in the in-trinsic structure of the muscle, as they prevent the loss of sarcomeres caused by limb disuse, stimulating the addition of sarcomeres in parallel (hypertrophy) in the muscle fiber and in-creasing muscular endurance through increased oxidative capacity in individuals with neu-rological injury [9-11].
Muscle fibers differ structurally, histochemical, and metabolically, and can be classified into two main categories: type I fibers and type II fibers. Type I fibers are understood to be slow contracting, while type II fibers are fast contracting. Most muscle groups have an equal com-bination of type I and type II fibers, although some groups may have a predominance of slow or fast contracting fibers. Several factors can influence the quantity of each type of fiber, in-cluding genetics, hormonal levels in the blood, and exercise practice. Electrical stimulation primarily activates fast contracting fibers, while conventional physical activity primarily acti-vates slow contracting fibers. In theory, this is an advantage of electrical stimulation [1,2,10,11].
In the practical application of electrostimulation for any modality, it is essential to consider certain criteria, such as the choice of materials to be used (device, electrodes, and contact medium), skin preparation, electrode placement, stimulation parameters (waveform, frequency and duration of the stimulus, stimulus and rest time, intensity of the stimulus, and duration of application).
In Orofacial Motor Function, there are many possibilities for using electrostimulation, in-cluding analgesia, sensory activation, motor activation, relaxation, motor contraction, low frequency and low-intensity muscle stretching, in post-orthognathic surgical cases, tem-poromandibular disorders (TMD), trismus, bruxism, facial aesthetics, snoring and sleep apnea, and cases of muscular hypotonia or intra or extra-oral hypertonia. Therefore, it is necessary to have a good understanding of electrostimulation, including knowledge of electrophysiol-ogy and clearly defining how to use the currents and how to associate them with functional exercises.

TEMPOROMANDIBULAR DISORDER (TMD)

Temporomandibular dysfunction is a term that describes a group of diseases that functionally affect the masticatory apparatus, particularly the masticatory musculature and the tem-poromandibular joint (TMJ). It has multiple etiologies and specific treatments, including transcutaneous electrical nerve stimulation (TENS). Epidemiological studies show that ap-proximately 75% of the population has some sign of TMD, while 33% have at least one symp-tom. Whenever possible, the cause of the pain should be treated. If the etiology cannot be established, less invasive and reversible procedures should be initiated, particularly in cases of pain and muscular dysfunction. TENS therapy consists of administering electric current to the skin surface in order to relax hyperactive muscles and promote pain relief [7]. A variety of symptoms can be grouped under TMD, with pain primarily in the muscles involved in chewing being one of the most common. The clinical picture suggestive of TMD usually in-cludes altered or limited jaw movements, facial, headache or neck pain, and joint noises. Symptoms such as headache and earache, dizziness, and hearing problems may be associat-ed with TMD [12].
Some studies have shown the effectiveness of TENS in the treatment of TMD, either com-bined with other therapies or through improvement in the functionality of the Stomatog-natico System [12-14]. TENS not only provokes analgesia, whether sensory or motor, but also aids in the execution of functional exercises by increasing proprioception, facilitating movements such as mouth opening and chewing, for example.

ELECTROSTIMULATION APPLIED IN DENTISTRY STOMATOLOGY

Muscular and ligamentous connections form another system, called the cra-nio-cervico-mandibular functional system. In this system, TENS can be used to relax the chewing and facial muscles. It can be employed for:
• Diagnosis and treatment of temporomandibular joint dysfunctions
• Neuropathies and myalgia's of the chewing muscles

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• Treatment of acute and chronic inflammatory and painful processes
• Prophylaxis and prevention of post-operative pain and swelling
• Patient relaxation before and after surgery, enhancing the anesthetic and analgesic effects, increasing pain perception and reaction threshold
• Treatment of trismus, spasms, and contractions of the superficial and deep facial muscles
• Acceleration of healing processes whenever possible, it should be accompanied by suita-ble functional activities for each pathology.

In the vast majority of cases, initiating with sensory stimulation is the most appropriate ap-proach, and muscle contractions should be carefully planned to prevent contractions, synkinesis, or a decrease in sensitivity due to excessive contractions leading to peripheral fa-tigue [12].

APPLICATION FOR INTRAORAL STIMULATION

For intraoral stimulation, we can apply NMES with the purpose of producing various forms of stimulation ranging from sub sensory level stimulation to sensory, sensorimotor, and muscle contractions in the face, soft palate, pillars, tongue, and sublingual glands. Low frequencies (between 5 and 15 Hz) are more suitable when there is near-normal muscle activity because it allows for the performance of some functional exercises simultaneously. In other condi-tions, muscle contraction must be provoked and followed by functional exercises. Muscle contraction stimulation can be performed on the face, tongue segments including under the tongue, and soft palate. The application on the soft palate region should be done with cau-tion, especially in children, due to the possibility of activating the vagal reflex. Ideally, stimu-lations should be performed in sets; 3 to 5 contractions per set with contractions lasting be-tween 3 and 5 seconds. Performing exercises and/or movements help dissipate some of the electric charge on the mucous membranes and muscles. The reason for stimulating with FES or RUSSA currents is that TENS is a current for analgesia, and to obtain the same conditions as the other currents, a higher intensity is necessary, which can cause pain. When performing intraoral stimulation, care must be taken not to touch the electrodes on the vestibular region or dental face to avoid causing pain. The patient's comfort intensity and the therapist's de-sired objectives should always be respected. In other words, if the objective is to produce sensory stimulation, there is no reason to establish a high intensity.

MOTOR POINT STIMULATION

Electrostimulation can be used both to capture the motor point and to stimulate muscle con-traction. Here, we will focus exclusively on facial muscles. In order for the stimulation to be efficient for muscle contraction and result in increased muscle quality, it is necessary to know what type of fibers to stimulate. This way, we can find the correct frequency to be ini-tially used muscle by muscle. This condition arises from the fact that muscles have a pre-dominance of certain types of muscle fibers, and stimulating all of them with a single fre-quency seems to us to be unproductive due to the possibility of acute fatigue occurring. As resistance and strength develop, electrical stimulation of the muscle group can be per-formed, always accompanied by functional exercises. The duration of the impulse must re-spect the threshold of the motor fibers, in order to have the correct action on the muscle being worked. The stimulus time should be shorter than the rest time between stimulations, to avoid fatigue. The modulation of the stimulus used must take into account that the time spent until maximum contraction should be shorter than the time of decrease in stimulus.

APPLICATION OF ELECTROSTIMULATION IN FACIAL PARALYSIS

Peripheral Facial Paralysis is a lower motor neuron injury, which consists of the involvement of the facial nerve in its entire trajectory or part of it, with Bell's Palsy (BP) being its most common form and of unknown etiology.
Neuromuscular electrical stimulation, or electrostimulation, is a technique that promotes muscle strengthening based on the stimulation of intramuscular branches of motor neurons, which induce muscle contraction. Through electrotherapy, changes similar to those pro-duced by voluntary contractions are produced in the muscles - the depolarized nerve mem-brane generates action potentials in the motor neurons that result in muscle contraction, in-creased muscle metabolism, release of metabolites, increased oxygenation, dilation of arte-rioles, and increased blood flow to the muscle. There is evidence that denervated facial muscles can respond to electrical stimulation and produce significant results, including in the chronic phase of rehabilitation. Due to the causative agent of BP, neuropraxia is the most common mechanism of injury and is characterized by localized interruption of nerve con-duction with preservation of structural integrity. Neuropraxia is considered the mildest de-gree of neural injury because it has transient blockade of nerve conduction. In this case, the axon retains its continuity and there is no rupture of the cell membrane. Electrical stimula-tion is important in the recovery of BP, as facial muscles have fewer fibers per motor unit, are delicate, and atrophy more quickly than other larger muscles. Currently, pulsatile cur-rents of low and medium frequencies with wide pulse duration are used; interrupted direct current aims to directly excite denervated muscle fibers [15]. When applying electrical stim-ulation in PF, the intensity of neural lesions (mild, moderate, or severe) should be consid-ered, taking into account, on one hand, the regenerative capacity of nerve tissue and, on the other hand, the conditions existing in the proximal and distal portions of the nerve at the site of the injury. If the intensity of the current applied is

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excessive, damage to the neuromuscu-lar structure can occur during treatment. Therefore, the intensity of the applied current should be sufficient for visible muscle contraction. There are disagreements regarding the use of electrotherapy, as it is claimed that it is responsible for increased tetany, contractures, hyper tonus, and hemifacial spasm, which can trigger synkinesis [15].
The ideal way to apply electrostimulation in cases of facial paralysis is to use various forms of stimulation, ranging from sensory stimulation to sensorimotor activation without tetatina, calculating the initially small number of contractions, stimulating both intraoral and extraoral areas, and always accompanied by functional exercises and appropriate maneuvers. If one chooses to only perform muscle contractions, the literature has already documented the disadvantages. Electrostimulation, when used with knowledge of each current and its fre-quencies, produces very favorable results. We also recommend reading about electrostim-ulation in denervated muscles for a better understanding of the topic. It is worth noting that the clinical evolution is favored by the combination of techniques used appropriately and with knowledge of the physiology of each one. Electrostimulation is another tool that, when used properly, provides good results.

APPLICATION IN SNORING AND SLEEP APNEA

SAS is a chronic, progressive, disabling disease, with high mortality and cardiovascular mor-bidity, affecting approximately 4% of the adult population. Among sleep disorders, this syn-drome is the most common [16]. It is defined by repeated episodes of upper airway obstruc-tion during sleep (apneas), that is, complete cessation of oro-nasal flow lasting 10 seconds or more, while reductions in airflow (hypopneas) are characterized by a minimum 50% reduc-tion in oro-nasal flow and a reduction in oxygen saturation of at least 4% from baseline [17]. Obstructive Sleep Apnea (OSA) and Snoring are part of sleep respiratory disorders, being among the most prevalent and with the greatest consequences on an individual's quality of life. Several studies affirm that hypotonia of the oropharyngeal structures is directly related to Snoring and is highly prevalent in the elderly. Snoring is part of sleep respiratory disorders, being among the most prevalent and with serious consequences on an individual's quality of life and their roommate's. Snoring is a fairly frequent pathology and produces a noise (snore) during inspiration and/or expiration, caused by the vibration of the soft palate, tonsillar pil-lars, and other tissues of the oropharynx (oral part of the pharynx). Research proves that isolated Orofacial My functional Therapy (OMT) is effective in significantly reducing exces-sive sleepiness, objectively measured snoring, and the Apnea-Hypopnea Index (AHI) [18].
The suggested treatments for SAHOS mostly involve implementing measures to prevent the collapse of the upper airways during sleep, including treatments for obesity, behavioral in-terventions, tongue retaining intraoral devices and mandibular protrusion devices, as well as surgical procedures such as uvulopalatopharyngoplasty and partial glossectomy. Additionally, the use of Continuous Positive Airway Pressure (CPAP), a mechanical compressor that pumps air at positive pressure into the upper airways, is also utilized [16].
Electrostimulation can be applied in conjunction with techniques and exercises aimed at im-proving muscle condition related to the soft palate (resistance, strength, reaction speed and contraction), through stimulations that seek to increase sensitivity and contraction capacity of the muscles that make up the entire velar structure. Attention should be paid to the fre-quencies to be used, as there is a prevailing muscle typology among the muscles: Levator veli palatini, Tensor veli palatini (both with predominance of Type I fibers), Palatoglossus, Pa-latopharyngeal and Uvula muscles (predominance of Type IIA fibers). The therapist should be careful not to perform too many consecutive contractions to avoid acute fatigue and the risk of stimulating the vagal reflex, especially in children. Functional exercises are essential to reduce the level of energy that the muscles can accumulate and decrease the sensation of weight that some patients report.

APPLICATION OF ELECTROSTIMULATION IN AESTHETIC SPEECH THERAPY

Aging, although a physiological process, is degenerative from a biological standpoint [19]. Skin, fat, muscles, and osteocartilaginous structure experience losses, often irreparable, which are compensated for by adaptive processes. Modern Speech Therapy is divided into various areas of practice, including a focus on facial rejuvenation. Recognized by the Federal Council of Speech Therapy, which determined through resolution number 352 on April 5, 2008, the regulations regarding the practice of Orofacial Myology for aesthetic purposes, legalizing the practice and enabling more speech therapists to dedicate themselves, with study and ethics, to this new field of Orofacial Myology [20].
The demand for facial rejuvenation has shifted from simply erasing wrinkles and surgical tightening to a holistic approach. The face is the part of the body that has the most direct re-lationship with the world. It is primarily through facial expressions that humans express feel-ings and emotions such as concern, anger, joy, pain, and anguish. Aging is a physiological process, but currently, the search for a good appearance, a youthful, beautiful, and desired image is becoming widespread and necessary both for professional relationships and for aesthetic benefits [21].
The aging process involves a series of modifications that act together, resulting in various changes in facial architecture, ranging from spots, sagging, to expression lines and/or wrin-kles. It is a continuous process that results in structural changes in the face that are related to muscle action, skin sagging, loss of bone support, and decreased volume of facial fat com-partments, which over the years,

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generate alterations in its contour and harmony. The role of the speech therapist in facial aesthetics has to do with natural rejuvenation, specifically oc-curring in the face and neck region. The action is carried out through techniques that seek to adapt and maintain the functional and muscular aspects of the orofacial complex and pro-vide an appearance with more defined contours and smoother facial expressions, showing, in general, rejuvenation [19].
Electrostimulation is one of the new possibilities in the rehabilitation process allied with conventional therapy. It meets the needs of professionals who seek to integrate technology into the therapeutic process, making it more dynamic, potent and accelerating the results. Similarly, to other healthcare fields, speech therapy also constantly renews itself based on studies and research, absorbing new concepts and expanding its practice. Starting from the premise that the aging process goes beyond marks and wrinkles on the skin caused by the repetitive contraction of muscles over the years, it is pertinent to emphasize that there are also changes in the proportions of facial structures [25].
Muscles that are hypoactive in general cause the loss of volume and facial contour and hy-potonic, which move out of their original position; the skin "sags", becomes dehydrated, lines and expression lines are formed [22]. The flaccid muscles need to regain tone, return to their original position, and even be hypertrophied slightly to compensate for the space lost due to the thinning of the skin layers, fat compartments, and collagen loss. Electrostimu-lation can contribute within the realm of Orofacial Motricity, also for aesthetic purposes, ap-plied with clinical reasoning that favors the harmonization of facial structures and asymme-tries, reshaping the muscles through passive contraction and intra and extraoral stretches, acting even on the prevention and smoothing of existing wrinkles and/or expression lines. Preventing, treating, and delaying the harmful effects of time are objectives that can be es-tablished and achieved [25].
There are several reports in the literature, which include satisfactory results regarding the use of electrostimulation to improve muscle function quality [1,2,4,5,8,19]. The objectives of the technique include: maintaining the quality and quantity of muscle tissue, recovering the sensation of muscle tension, increasing or maintaining muscle strength, and stimulating blood flow in the muscle to increase oxygenation [23]. There is a wide variety of currents used in electrostimulation therapy, each with its own characteristics. But they all have a common goal: to produce a beneficial effect in the applied region (muscles and tissues). According to Borges [24], FES current emits bioelectrical signals from the human body, generating elec-trical current to compensate for the one that is in lower quantity in aging cells. This leads to a 500% increase in ATP production, amino acid transport, increased protein synthesis, align-ment and increase in collagen and elastin fiber synthesis, which are fully involved in tissue regeneration, also improving the appearance of cutaneous aging. It stimulates the micro-cir-culation of the skin, causing improvement in tissue nutrition and oxygenation, resulting in a revitalizing effect. It stimulates fibroblasts, which are responsible for improving collagen and the lymphatic system.
Another current widely used for aesthetic purposes is the Kotz current. According to Borges [24], the Kotz current can be defined as alternating current of medium frequency (between 2500 and 5000Hz) that can be modulated by bursts and can be used for excitomotor pur-poses. In electrostimulation with the Kotz current, as well as with FES current, considering characteristics such as contraction and rest time, motor point mapping, degree of flaccidity to be treated, and application time is necessary for good results. Therefore, muscles are ex-citable tissues, but this excitability depends on voltage-sensitive permeability. In addition, not all tissues can and should be stimulated exclusively to contract in a pure tetanic form. Often it is necessary to use these modes of electrostimulation (Kotz, FES) for stretching purposes, especially when the goal is to smooth wrinkles. Since skeletal muscle contraction is voluntary and not by electrical stimulation, we should always associate myofunctional therapy to have a more effective and lasting gain on the facial muscle complex. Electrostimulation, when asso-ciated with the basic knowledge of Orofacial Motricity, proves to be a great ally for profes-sionals interested in expanding and modernizing their field of work [25,26].

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