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Role of Physiotherapy in Management of Orofacial Diseases: A Brief Review

Pawandeep Kaur *[1], Amanpreet Kaur Johal [2]

1. BDS, Government Dental College and Hospital, Patiala, Punjab, India.

2. BDS, Sri Guru Ram Das Institute of Dental Sciences and Research, Amritsar, Punjab, India.

Corresponding Author: Pawandeep Kaur, BDS, Government Dental College and Hospital, Patiala, Punjab, India.

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Abstract

Physical therapy (PT), commonly referred to as physiotherapy, focuses on using physical means to assess, diagnose, and treat disease and disability. Numerous orofacial illnesses, including temporomandibular joint problem, facial paralysis, myofacial pain dysfunction, oral submucous fibrosis, and trismus, can be managed with the help of physical therapy. It is a non-invasive, risk-free, practical, and affordable therapeutic alternative that can be used in conjunction with other treatment techniques. The current article offers insight into the use of physiotherapy as an additional therapy in the management of disorders of the mouth and face.

Keywords: *Orofacial Disease, Physiotherapy, Physical therapy*

Introduction

Orofacial pain problems are chronic, complicated illnesses that are difficult for dentists to diagnose and treat because of their complexity. One of the most typical conditions is orofacial pain. This unpleasant feeling is typically linked to emotional, psychological, and social disturbances, which can have an impact on a person's physical quality of life and overall wellbeing. The patient's well-being and pain reduction are the main therapeutic treatment goals for doctors and patients. Physical therapy is a non-pharmacological treatment focused on the care, management, and rehabilitation of patients.**[**1**]** Numerous orofacial illnesses, including temporomandibular joint problem, facial paralysis, myofacial pain dysfunction, oral submucous fibrosis, and trismus, can be managed with physiotherapy. It is a non-invasive, risk-free, practical, and affordable therapeutic alternative that can be used in conjunction with other treatment techniques. The current article offers insight into the use of physiotherapy as an additional therapy in the management of disorders of the mouth and face.**[**2**]**

Various Physiotherapy Exercises and Its Application in Dentistry

Manual Therapy: It comprises the use of particular exercises, manual treatment, and manipulation with the goal of reducing pain and enhancing function. It incorporates yoga, massage therapy, mouth opening exercises for trismus, facial strengthening exercises, and tongue exercises.

Massage: Massage relieves pain while restoring the muscles' natural length and flexibility. Stress and anxiety are decreased because of the stimulation of parasympathetic activity. Deep massage can help by moving tissues, boosting local blood flow, and getting rid of trigger points. It works best after 10-

15 minutes of deep moist heat preparation of the tissues, which tends to relax the muscle tissue, reducing pain and maximizing the efficiency of the deep massage.[3]

Muscle conditioning: There are exercises that can help restore normal function and range of movement of the orofacial musculature. Four types of exercises can be instituted:[1]

Passive muscle stretching: The patient is instructed to slowly and deliberately open the mouth until pain is felt. The patient is encouraged to open on a straight opening pathway by observing in a mirror.

Assisted muscle stretching: It is used when there is a need to regain muscle length. The patient is instructed to apply stretching force gently and intermittently to the elevator muscle with the fingers. If pain is elicited, then the force should be decreased, or the exercises stopped completely.

Resistance exercises: The patient is instructed to place the fist under the chin and open the mouth gently against the resistance. These exercises are repeated 10 times each session, six sessions a day. If they elicit pain, they should be discontinued.

Postural training: In temporomandibular disorder (TMD) patients with muscle pain who also have a forward head posture, training the patient to keep the head in a more normal relationship with the shoulders may be helpful in reducing the TMD symptoms.

Electrotherapy: Electrotherapy is a method of medical treatment which uses electric current to the affected areas. It is mostly used by experienced physiotherapists to treat a variety of conditions ranging from muscle pain to arthritis. This treatment option is useful for treating chronic pain, muscle wasting, musculoskeletal injuries, and nerve pain by using targeted and controlled electrical stimulation. It uses transcutaneous electric nerve stimulation (TENS), therapeutic ultrasound, diathermy, acupuncture, laser therapy, ultraviolet radiation, and infra radiation.[4]

Transcutaneous Electric Nerve Stimulation: The non-pharmacological technique known as transcutaneous electric nerve stimulation (TENS) is frequently used by medical and paramedical practitioners to treat both acute and chronic pain in a range of illnesses. It can also be used to control pain brought on by a variety of disorders that affect the maxillofacial region, as well as discomfort experienced after various dental treatment.[5,6] TENS has been demonstrated to be effective in the management of xerostomia in addition to its analgesic benefits. TENS can also be utilized to induce non-analgesic physiological effects. TENS has been used successfully as an excellent analgesic in adults for a variety of dental procedures, including the implantation of rubber dams, preparation of cavities, pulp capping and other endodontic treatments, preparation of prosthetic teeth, oral

prophylaxis, and extractions. Moreover, it is utilized to ease periodontal pain brought on by orthodontic separation and to lessen discomfort after local anesthetic injections. **[**7,8**]**

Low-level laser therapy (LLLT): LLLT is a form of light therapy that triggers biochemical changes within cells. Photons are absorbed by cellular photoreceptors, triggering chemical alterations and potential biochemical benefits to the human body. LLLT has been used in pain management for years and is also known as cold laser therapy, which uses low-frequency continuous laser of typically 600 to 1000 nm wavelength for pain reduction and healing stimulation.**[**9**]**

Indications: TMJ disorder, Myofascial Pain Dysfunction, Neuralgic Pain, Herpetic Ulcer, and Accelerating healing of wound

Contraindications: Photosensitive areas of skin, neoplastic area.

Ultrasound Therapy: Therapeutic ultrasound is a noninvasive therapeutic method which includes vibrations above 16,000 vibrations/s or 16 Hz (range audible to the human ear). The frequency used is between 1.0 and 3.0 MHz.**[**10,11**]** It is known to accelerate healing, decrease joint stiffness, alleviate pain, increase the extendibility of collagen fibers, and reduce muscle spasm. Ultrasound increases the blood flow in deep tissues and increases the flexibility and extensibility of connective tissue. Diathermy and ultrasound are used for physiotherapy in the form of penetrating heat. Phonophoresis is the process by which drugs can be administered through the skin with the help of ultrasound. For example, 10% hydrocortisone cream is applied to an involved area and the ultrasound transducer is then directed at the temporomandibular joint (TMJ). Salicylates and topical anesthetics can also be used in this manner. Phonophoresis enhances the effect of corticosteroids, salicylates, and other topical anesthetics.**[**1**]**

Indication: Treating scar tissues, joint contractures, tissue adhesions and maladaptive shortening of connective tissue, in treating soft tissue lesions of various origin , muscle spasms, tendonitis, myofacial trigger points , complex regional pain syndrome, Osteoradionecrosis, burns, ulcer, wound, lichen planus, scleroderma.

Contraindications: Should not be used over pregnant abdomens, plastic implants, hemorrhage region, malignant lesions, ischemic lesions

Thermal Therapy: The application of modest, superficial heat in thermotherapy helps to reduce pain, improve healing, and stretch soft tissues. The metabolic, neuromuscular, and hemodynamic activities are impacted by surface heat. With little increases in tissue temperature, the oxygen-hemoglobin dissociation curve moves to the right, increasing the amount of oxygen available for tissue repair. Increased oxygen intake by the cell because of higher enzyme activity promotes healing.**[**12**]**

Heat application: Hot packs, paraffin, or hydrotherapy are used to apply heat. By vasodilatation, the application of heat increases blood flow. Moreover, there will be an increase in metabolic rate and tissue extensibility. Heat promotes the intake of oxygen, which speeds up tissue repair.**[**13**]**

Indications: Myofascial pain dysfunction, TMJ disorder, traumatic injury, muscle spasm, and trismus

Contraindications: In patients with recent hemorrhage, bleeding, localized infection and over areas of metal implants.

Cold application: Ice packs, cooling gel packs, or cold spray are used to apply cold. Applying cold lowers the skin's and soft tissue's temperature, which causes vasoconstriction to constrict blood vessels and inhibits blood flow. It also slows down tissue metabolism, neuronal excitability, inflammation, conduction rate, and extensibility.13

Indications: Postoperative pain, post tooth extraction, postoral surgical procedures, and swelling in injured tissues

Contraindication: Peripheral vascular disease, rheumatoid arthritis, and sickle cell anemia.

Miscellaneous

Dry Needling: Dry needling uses a thin filiform needle to penetrate the skin and stimulate underlying myofascial trigger points, muscular, and connective tissues for the management of neuro-musculoskeletal pain and impairment in movement.**[**14**]** The advantages of dry needling are increasingly documented and include an immediate reduction in local, referred, and widespread pain, restoration of range of motion and muscle activation patterns, and a normalization of the immediate chemical environment of active myofascial trigger points.**[**15,16**]**

Kinesio taping (KT): Kinesio taping is a method of elastic taping, created in the 1970s by a Japanese chiropractor, Dr. Kenzo Kase. Kinesio taping can be used to correct disorders in muscle tone, to treat trigger points and to increase the range of joint motion. Kinesio taping method that has become a common practice in recent years can be used alone or combined with conventional physical therapy methods. In a study conducted by Ay S et al. investigating the effectiveness of kinesiology taping in MPDS treatment, individuals were divided into two groups, with the first group receiving kinesio taping and exercise, whereas the second group received sham taping and exercise. The taping and exercise treatments were repeated every 3 days and five treatment sessions were applied in total over a 3-week period. It was reported that while both groups showed improvement, the group that received kinesio taping and exercise experienced a greater improvement.**[**17**]** The kinesio taping method reduces pain by increasing the blood flow and lymphatic circulation. The decrease in pain level is thought to be resulting from the inhibition of the transmission of pain sensation by the gate control mechanism at the spinal level.**[**18**]**

Iontophoresis: A pad containing the drug is placed on the desired tissue location. The drug is then forced into the tissue by a weak electrical current that is then transmitted via the pad. Anti-inflammatory drugs and local anaesthetics are often utilized pharmaceuticals.

Conclusion

As a conservative treatment, physical therapy is being increasingly recognized as an important treatment because it has been long used for musculoskeletal disorders treatment as they cause pain and muscle spasms reducing, mobility and muscle strength improving. The integrated operation between the dentist and the physiotherapist helps in early diagnosis and improves the therapeutic interventions effectiveness. It is essential to have an interdisciplinary treatment plan where dentistry treats the disorders related to the stomatognathic system beyond helps in pain relief and physical therapy helps in pain relief. The effectiveness of an interdisciplinary work between dentistry and physiotherapy for the treatment of orofacial pain has been properly verified.

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