

# Physical therapy treatment for miofascial pain syndrome and fibromyalgia\*

## Tratamento fisioterapêutico na síndrome da dor miofascial e fibromialgia

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### SUMMARY

**BACKGROUND AND OBJECTIVES:** Myofascial pain syndrome and fibromyalgia are among chronic pain conditions affecting the musculoskeletal system. While fibromyalgia is a diffuse pain, miofascial pain syndrome is characterized by its localized involvement. This study aimed at reviewing the literature to identify and group information about myofascial pain syndrome and fibromyalgia.

**CONTENTS:** Electronic Medline, LILACS and Scielo databases were queried in the search for articles published in English and Portuguese, using the keywords myofascial pain syndrome / *síndrome de dor miofascial*, fibromyalgia / *fibromialgia*, physical therapy in myofascial pain syndrome / *fisioterapia na síndrome de dor miofascial*, and physical therapy in fibromyalgia / *fisioterapia na fibromialgia*, published from 1991 to 2012. Twenty-nine articles were selected.

**CONCLUSION:** Physical therapy programs promote more gains to decrease the impact of myofascial pain syndrome and fibromyalgia symptoms on patients' lives, thus the importance of the multidisciplinary and educative work, where the physical therapist participates, accurately informing and guiding patients.

**Keywords:** Fibromyalgia, Miofascial pain syndrome, Musculoskeletal system.

### RESUMO

**JUSTIFICATIVA E OBJETIVOS:** Dentre as condições dolorosas crônicas que acometem o sistema musculoesquelético destacam-se, a síndrome da dor miofascial e a fibromialgia; enquanto a fibromialgia corresponde a uma condição dolorosa difusa, a síndrome da dor miofascial é caracterizada pelo envolvimento localizado. O objetivo deste estudo foi revisar os estudos da literatura, a fim de identificar e agrupar informações sobre a síndrome da dor miofascial e a fibromialgia.

**CONTEÚDO:** Foram selecionados 29 artigos de por meio da consulta aos indexadores de pesquisa nas bases de dados eletrônicas Medline, LILACS e Scielo publicados nas línguas inglesa e portuguesa, utilizando os descritores *myofascial pain syndrome/ síndrome da dor miofascial*, *fibromyalgia/ fibromialgia*, *physical therapy in myofascial pain syndrome/ fisioterapia na síndrome da dor miofascial and/ e physical therapy in fibromyalgia/ fisioterapia na fibromialgia*, publicados no período de 1991 a 2012.

**CONCLUSÃO:** Os programas de fisioterapia promovem os maiores ganhos na diminuição do impacto dos sintomas da síndrome da dor miofascial e da fibromialgia na vida dos pacientes, daí a importância do trabalho multidisciplinar e educativo no qual o fisioterapeuta, participa informando e instruindo corretamente os pacientes.

**Descritores:** Fibromialgia, Síndromes da dor miofascial, Sistema musculoesquelético.

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### INTRODUCTION

Miofascial pain syndrome (MPS) is a neuromuscular re-

gional disorder characterized by the presence of sensitive sites in tense/contracted muscle bands, of burning pain, weight or tenderness, sometimes stabbing, pain and decreased muscle strength, movement amplitude limitation and, in some cases, muscle fatigue producing referred pain in distant or adjacent areas. Autonomic phenomena, which may be simultaneous to the trigger-point reference zone (TP), include: vasoconstriction, sweating and pilo erection. Proprioceptive disorders which may be associated are: unbalance, dizziness, tinnitus and objects weight distortion<sup>1</sup>.

MPS is one of the most common causes of musculoskeletal pain. It affects muscles, connective tissue and fascias and may be caused by degenerative, metabolic, inflammatory, infectious or neoplastic processes, macro or micro traumas in different structures especially neck, shoulder girdle and back. Although being one of the most common causes of pain and disability, many health professionals do not recognize it. It is known that miofascial pain tends to affect patients around 31 and 50 years of age and this suggests that individuals in more active age groups are affected the most<sup>2,3</sup>.

Fibromyalgia (FM) is considered a chronic disease difficult to treat, especially affecting females between 40 and 60 years of age, which is a productive professional activity age group. The disease is characterized by widespread muscle pain, presence of tender points, sleep disorders, stiffness and fatigue. Pain is not inflammatory, degenerative or progressive; it is chronic and systemic<sup>4,5</sup>. Sometimes, pain is so severe that interferes with work, with daily life activities and with patients' quality of life (QL)<sup>6,7</sup>. In many industrialized countries, its prevalence varies from 1% to 4% of general population, being the second most frequent rheumatologic disease exceeded only by degenerative osteoarthritis<sup>8</sup>.

This study aimed at reviewing the literature to identify and group information on MPS and FM.

## CONTENTS

Electronic Medline, LILACS and Scielo databases were queried using the following keywords: myofascial pain syndrome / *síndrome de dor miofascial*, fibromyalgia / *fibromialgia*, physical therapy in myofascial pain syndrome / *fisioterapia na síndrome de dor miofascial*, and physical therapy in fibromyalgia / *fisioterapia na fibromialgia*.

Inclusion criteria were: articles published in Portuguese or English with MPS and FM patients, published from 1991 to 2012 in specialized journals and indexed in

queried databases. We have found 79 articles and after reading the abstracts, 50 articles were excluded for not matching inclusion criteria. From excluded articles, 25 addressed quality of life of rheumatic disease patients only, and 25 were studies with patients with MPS due to temporomandibular dysfunction. At the end, 29 articles were selected, totally read and included in the review.

## MYOFASCIAL PAIN SYNDROME

MPS affects muscles, fascias, ligaments, pericapsular tissues, tendons and bursae. It is characterized by muscle pain in endured regions, where there are palpable tension bands and extremely tender points, the TP<sup>9</sup>.

Traditional and restricted MPS definition is that pain appears in muscle TP. TP are small muscle areas, sensitive spontaneously or by compression, which cause pain in a distant region, known as referred pain<sup>10</sup>.

TP are located in a tender area in a muscle band and may be active or latent. Active TP are painful with or without movement, while passive TP are only painful at palpation. TP cannot be mistaken by tender points seen in FM syndrome. TP are painful at palpation site, but may also irradiate pain to other points<sup>3</sup>.

Myofascial TP is typically found by physical evaluation and palpation. Trigger-points diagnosis is made by physical exploration, which should take into account physical signs such as: palpable tension in musculoskeletal zone, hypersensitive tender nodes in muscle tension zone, local contraction visible or palpable by compression<sup>11</sup>.

A muscle with TP does not work effectively. The tension band restricts muscle elongation, thus limiting movement. Weakness is produced by muscle inhibition-induced pain, as well as by muscle shortening. Coordination is affected and the reflex inhibition of muscle antagonist activity is impaired<sup>12</sup>.

MPS is the major cause of musculoskeletal pain; there is a high prevalence in patients with regional musculoskeletal pain. It is one of the most frequent causes of back and neck pain. In a study where 164 patients have referred clinical pain, with chronic head and neck pain lasting at least six months, 55% had primary diagnosis of MPS. The same author observes that its prevalence increases with age. The increasing life expectancy in our society justifies this pathological situation, increasingly affecting patients' daily life activities and, as a consequence, their functional capacity. So, nowadays MPS has a significant impact on the quality of life of MPS patients<sup>13</sup>.

A successful physical therapy treatment depends on

maximum movement amplitude gain (AG), which means the disruption of contractures of involved sarcomeres<sup>14</sup>. Elongation of the neck and shoulder girdle muscles improves posture and pain in patients with cervicogenic or tension headache.

Kinesiotherapy aims at improving and optimizing muscle mechanical activity and at providing analgesia, recovery of tissue expansibility, strength, resistance to fatigue and reestablishment of kinesthesia, that is, of physiological gestural patterns, by inhibiting irritating and limiting factors. The aim is to reestablish expansibility and isometric length of the muscle and of superficial tissue layers. For such, the techniques of passive, active assisted or active elongation are used, in addition to release maneuvers or myofascial inactivation, such as massage on the reflex zone and deep transverse massages, followed by isometric contractions to maintain and recover muscle trophism<sup>15</sup>.

In advanced stages, there is the need for cardiorespiratory conditioning because, as in patients with chronic low back pain, elongations at home do not prevent pain recurrence, while regular cardiorespiratory strengthening and conditioning exercises prevent it. Regular physical activities contribute not only to physical improvement, but they also bring psychological benefits, improve and promote well being, in addition to eliminating phobia of exercises. Active exercises induce participation in chronic pain coping. Group exercises decrease psychological stresses and help socialization<sup>16</sup>.

Several modalities, such as massotherapy, superficial heat with thermal bags, or deep heat with ultrasound, shortwave, microwaves, cryotherapy with ice compresses, freezing aerosol, whirlpool hydrotherapy, Hubbard tank associated to hydromassage and pool-based therapy, electrotherapy with transcutaneous electric nerve stimulation, faradic currents, iontophoresis of analgesic and anti-inflammatory agents may be used to decrease muscle tension and inactivate TP<sup>17</sup>.

Manual therapy consists of tissue massage techniques. Myofascial release techniques, such as deep transverse massage, reflex zone massage, Shiatsu, Rolfling, John Barnes and myofasciotherapy, among others, release muscle and fascia and are based on the manual pressure of muscle fascia, releasing fascial restrictions. Muscle pain may appear after treatment and ice, heat or electric current are recommended for its relief<sup>18</sup>.

The rehabilitation process is in general long and depends on patients' education and responsibility and on the development of a partnership between physical therapist and patient, based on mutual trust. In the

long term, the approach is not limited to TP treatment only, but rather it is aimed at identifying and modifying contributing factors, since they are related to patients' biopsychosocial aspects<sup>19</sup>.

## FIBROMYALGIA

Fibromyalgia is a chronic and systemic disease, characterized by widespread muscle pain, sleep disorders, joint stiffness, muscle fatigue, psychological changes and low tolerance to physical effort. Without inflammatory origin, pain is neither degenerative nor progressive and may be isolated or associated to other rheumatic diseases<sup>20,21</sup>.

Its predominance is higher in females in productive age, however it may affect children, adolescents and elderly people<sup>22</sup>. Although affecting many people worldwide because its prevalence is 2%, its pathophysiology is as uncertain and multicausal as its etiology. Social, emotional and family factors, associated to higher response to painful stimulations, to the low level of cardiovascular conditioning and muscle performance are the most feasible hypotheses<sup>20,23</sup>.

Diagnostic is purely clinical, since there are no laboratory changes or radiological determinants. Since 1990, the American College of Rheumatology has established diagnostic criteria for FM, namely: widespread pain for more than three months on the left and right sides of the body, and pain in 11 out of 18 specific body tender points<sup>24</sup>.

FM is a new disease<sup>25</sup> and sometimes the lack of understanding of health professionals and the lack of studies to establish specific physical therapies for its management, cause symptoms to last for a long time before they are treated<sup>20</sup>. To address FM functional limitations and their impact on QL, it is necessary to broaden the perspective of symptoms impact, because affected areas become as important as the disease<sup>26</sup>.

Physical therapy relieves symptoms by improving patients' pain control and by maintaining or improving functional abilities. In addition, other physical therapy goal should be the educative role so that intervention gains may remain for the long term and patients are able to become less dependent on health care. More participative and functional lifestyles contributing to patients' physical and emotional recovery are encouraged<sup>26</sup>.

Exercise is an integral part of FM physical therapy. Recent studies indicate that aerobic exercises, in adequate intensity for the individual, may improve function, symptoms and well being<sup>27</sup>. The mechanism responsi-

ble for the analgesic effects is still not clear, but studies show that aerobic physical activity promotes consistent activation of the endogenous opioid system which, in turn, promotes pain and tolerance threshold increase, resulting in analgesic response. Other contribution of physical activities to pain relief is related to disrupting the pain-immobility-pain vicious cycle, encouraging patients to go back to their daily activities<sup>28</sup>.

A research has concluded that exercises or other types of physical therapy treatments, added to pharmacological treatments, may greatly improve the quality of life of FM patients. In addition, it has stressed the importance of a multidisciplinary approach for FM patients due to its high morbidity<sup>27</sup>.

A randomized clinical trial was carried out with two intervention groups: hydrokinesiotherapy and conventional kinesiotherapy. There has been QL improvement in both groups. Also, elongations and low intensity aerobic exercises used in both protocols were considered likely responsible for the beneficial effects observed in both studied therapeutic modalities. Kinesiotherapeutic exercises may be applied to groups of FM patients, promoting better quality of life at a low cost<sup>29</sup>.

MPS is the major cause of musculoskeletal pain, with the appearance of tender or latent TP in muscles, which may irradiate pain to other points. FM is a chronic and systemic disease, characterized by widespread muscle pain with diffuse pain for more than three months on the left and right sides of the body and pain in 11 out of 18 specific body tender points, which is different from TP seen in MPS.

## CONCLUSION

Physical therapy schedules promote the highest gains to decrease the impacts of MPS and FM symptoms on patients' lives, thus the importance of the multidisciplinary and educative work, in which the physical therapist participates by accurately informing and guiding patients.

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