

# EFFECTS OF DRY PUNCTURE IN TREATMENT OF CHRONIC HIP PAIN AND IMPROVEMENT OF MOTOR SKILLS: CASE REPORT

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*Rad je primljen 14.10.2022. Rad je recenziran 29.10.2022. Rad je prihvaćen 12.11.2022.*

## SUMMARY

Dry needling is a medical technique adapted to acupuncture. Also referred to as intramuscular stimulation (IMS). It is an invasive procedure in which an acupuncture needle is inserted into the skin and muscles. Dry needling is aimed at trigger points, which are defined as "hyperirritable spots in muscles that are associated with hypersensitive palpable nodules in a tight muscle or muscle fiber." Trigger points are extremely common and trigger a pain symptom in almost every person sooner or later. The aim of this paper is to show the effects of dry puncture on the reduction of chronic pain in the hip by treating myofascial trigger points, and to improve the motor skills of a woman of the third age. Dry puncture has been used by therapists for a long time, but it only became known in the sixties of the last century in the United States of America when it was put into practice by Janet Travel, then JF Kennedy's personal therapist. The effects of applying dry puncture in the presentation of the case of a woman with chronic pain in the hip, show positive effects and the presence of myofascial trigger points as one of the causes of chronic pain in the hip joint.

**Key words:** dry needling, physiotherapy, evaluation

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## INTRODUCTION

Persistent, recurrent chronic pain affects 39-70% of older adults worldwide (1-4) and negatively affects their daily life not only by causing discomfort, but also by limiting their activities contributing to loneliness and social isolation (5). Conditions of the musculoskeletal system, such as pain in the hips, are the leading causes of pain and disability in the local environment and the second largest global factor as a cause of years of immobility (6). Chronic hip pain is distressing for the patient because it not only makes daily life activities difficult, but also affects the quality of life. Chronic hip pain is difficult to diagnose because patients often have associated chronic pain in the lumbar spine and/or knee joint. Moreover, non-orthopedic causes can also manifest as chronic hip pain (7). The differential diagnosis of hip pain is broad and presents a diagnostic challenge. Patients often report that their hip pain is localized to one of three anatomical regions: anterior hip and groin, posterior hip and buttock, or lateral hip (8). Research shows that dry puncture gives very good results in reducing the intensity of pain in the hip joint.

Dry needling is probably the most widespread form of invasive techniques used in physiotherapy. It involves puncturing soft tissue with a thin filiform needle, and acupuncture needles are commonly used to reduce pain and return to an optimal functional level (9). The dry puncture technique is a deep puncture with rapid entry and exit from the treated muscle (10). Previous research indicates that dry puncture is very effective in solving problems with hip pain, mobility, and raising the quality of life to a higher level. Several approaches to Dry needling have been developed based on various individual theories, insights and hypotheses. 3 main models are presented: the myofascial trigger point model, the radiculopathy model, and the spinal segmental sensitization model. An alternative is a medical technique adapted to acupuncture. Also referred to as intramuscular

stimulation (IMS). It is an invasive procedure in which an acupuncture needle is inserted into the skin and muscles. As the name suggests, it targets trigger points, which are defined as “hyperirritable spots in muscles that are associated with hypersensitive palpable nodules in a tight muscle or muscle fiber (11). Trigger points are extremely common and trigger a pain symptom in almost every person sooner or later. According to the intensity and manifestation, there are several types of trigger points, and the basic ones are active and latent and satellite and secondary. Active type trigger points mostly cause pain, while latent trigger points cause pain when palpated, often causing motor dysfunction (stiffness and limited range of motion) without pain, they are far more common than active trigger points. Active trigger points in one muscle can induce an active satellite trigger point, i.e. another muscle. Deactivating a key trigger point often deactivates its satellite trigger point as well. A secondary trigger point is pain that occurs in one muscle when another muscle is strained (12).

In this paper, I present the case of a 67-year-old female with chronic pain in the hip joint. In the process of data collection, variables were used: one-dimensional scale Visual analog scale (VAS) (13) and Senior fitness test (14, 15), while the measurement of anthropological characteristics included the dimensions of body height and body weight. The data were interpreted using the method of descriptive statistics.

The VAS scale is the most frequently used one-dimensional scale. On a scale from 0 to 10, the patient numerically assesses the intensity of the pain. A rating of zero (0) indicates no pain, 1 to 3 indicates mild pain, 4 to 6 moderate, while ratings of 7 to 10 indicate very severe pain. The advantage of this scale lies in its simplicity, frequency of application and validation for numerous pain settings. The disadvantages of this scale are its inapplicability to young children and elderly people with hearing, vision and

cognitive impairments (1). For data collection, a modified Senior Fitness Test was used, a protocol developed by Rikli and Jones (3) and designed to assess the level of functional fitness of people over 60 years of age.

## CASE PRESENTATION

In this paper, I present a patient with extremely severe pain in the right hip joint. The pain first appeared 6 years ago and mostly occurred when walking. Recently, it was difficult for her to go up and down the stairs because of the great pain and lack of strength in her legs. Chronological age is 67 years, body height 150 cm and body weight 57 kg. She has been a patient for two years and is retired. Physiotherapy assessment consisted of taking an anamnesis, assessing hip joint pain using a numerical VAS scale. The Senior fitness test was modified and adjusted for pain in the hip joint, and in this work the following variables were not measured: elbow bend for 30 seconds and shoulder girdle flexibility. Variables measured: leg strength, endurance test and flexibility of the back.

Physiotherapy treatments included the application of 6 dry puncture therapies for three weeks, twice a week. At the initial test, the patient rated the intensity of pain on the VAS scale as 9, which is an extremely high value. And there was also a limp when walking. In the modified Senior fitness test, the following were measured during the initial testing: leg strength 13 repetitions, endurance test 9 repetitions, flexibility of the rear leg of the right leg +0 cm, flexibility of the rear leg of the left leg 0 cm and dexterity test 7.92 seconds.

The primary goal of the therapy was to reduce the intensity of pain, while the secondary goal was to improve the patient's motor skills and quality of life.

Dry puncture treatments were carried out over 3 weeks and a total of 6 treatments were performed. The patient was lying down and the hip flexor muscles were treated: m. rectus femoris and m. tensor fasciae latae, and extensor

m. semitendinosus, m. semimembranosus and m. gluteus maximus. Standard dry puncture procedures were performed before, during and after treatment. By palpation, myofascial trigger points within the taut muscle fibers were identified. During each treatment, active trigger points were punctured to cause one local twitch in each muscle and acupuncture needles with a plastic guide, size and thickness 30 mm x 0.3 mm and 40 mm x 0.3 mm.

After three weeks and the completion of 6 therapeutic units, the final testing was done. On the VAS scale, the patient marked the intensity of pain with 1 (no pain), and after the third therapy, no limping was noticed. The senior fitness test at the final testing showed the following results: leg strength 23 repetitions, endurance test 75 repetitions, flexibility of the right hindquarter 0, flexibility of the left hindquarter -6 cm and dexterity test 7.01 seconds.

## DISCUSSION

Dry needling is an intervention used to treat myofascial pain syndrome and related impairments. Myofascial pain syndrome is characterized by the presence of one or more symptomatic myofascial trigger points located in skeletal muscles (16).

It is believed that the affected fibers in the muscle shorten, which is why trigger points are palpated within the structure that we feel as a taut string in the muscle, and the shortening of the fibers is theorized to occur in response to an increased concentration of calcium ions or in response to an excessive release of acetylcholine (17). This paper presents a patient with chronic pain in the hip joint caused by myofascial trigger points as one of the causes of chronic pain in the hip joint. After 6 therapies, the results were very positive, and the primary and secondary goals were met. The clinical results were positive, which indicates a reduced intensity of pain and disability according to the outcome measures used in the patient's treatment. Subjective

indicators of the condition show that the patient fulfills basic life needs smoothly and without pain. After the treatment, the quality of life also greatly improved, especially in the part that she went for long walks and used the stairs because she was unable to before the therapy, and several previous studies have shown that the elderly in particular marked the test of climbing the stairs as one of the most difficult tasks (18, 19, 20). There was also an improvement in walking without the occasional limp that was common before therapy. Research by Pavkovich et al. (2015) on 4 case studies of the effects of dry needling conducted over a period of 3 to 12 months showed clinically significant improvements in pain and disability. Subjects reported improved sleep and functional mobility, which were commensurate with their different age ranges and initial reported mobility limitations. The results of this case series show promising results for the use of dry needling in the treatment of chronic flank and thigh pain (21).

## **CONCLUSION**

In this paper, after 6 treatments lasting 3 weeks, the positive effects of using dry puncture in the treatment of a woman with chronic hip pain are shown. After the treatment of myofascial trigger points, the pain was reduced to a minimum, and it can be concluded that the symptoms of pain in the hip joint can also be addressed to myofascial trigger points.

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# UČINCI SUHE PUNKCIJE U LIJEČENJU KRONIČNE BOLNOSTI U KUKOVIMA I POBOLJŠANJU MOTORIČKIH VJEŠTINA: PRIKAZ SLUČAJA

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## SAŽETAK

Suha punkcija je medicinska tehnika prilagođena akupunkturi. Također se naziva i kao intramuskularna stimulacija (IMS). Invazivan je postupak u kojem se uvodi akupunkturna igla u kožu i mišiće. Suha punkcija je usmjerena na trigger točke, koje se definiraju kao „hiperiritabilna mjesta u mišićima koji su povezani s preosjetljivim palpabilnim čvorićima u zategnutom mišiću ili mišićnom vlaknu. Trigger točke su izuzetno česte i aktiviraju simptom bola skoro svakog čovjeka prije ili kasnije. Cilj ovog rada je ispitati efekte suhe punkcije na smanjenje kronične boli u kuku i tretmanom miofascijalnih okidačkih točaka i poboljšati motoričke sposobnosti žene treće životne dobi. Suhu punkciju terapeuti primjenjuju već duže vrijeme, ali postala je poznata tek šezdesetih u Sjedinjenim Američkim Državama od strane Janet Travel, tadašnjeg osobnog terapeuta J.F. Kenedija. Efekti primjene suhe punkcije u prikazanoj studiji slučaja žene sa kroničnom boli u kuku, pokazuju pozitivne učinke te prisutnost miofascijalnih okidačkih točaka kao jedan od uzroka kronične boli u zglobovima kuka.

**Ključne riječi:** suha igla, fizioterapija, evaluacija

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