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THE ROLE OF KINETOTHERAPY IN THE TREATMENT OF SCAPULOHUMERAL PERIARTHRITIS

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Abstract: *This study highlights the essential role of kinetherapeutical intervention immediately after the diagnosis and the importance of a recovery kinetotherapy program for a better and optimal functioning of the shoulder articulations, thus creating a path for the patient's independence and his/her reintegration in the daily activities and in the society. The purpose of the study is to recover the shoulder's functionality, but also restore an optimal state of health by observing the evolution of the articular amplitude and the muscular force from this articulation. During recovery one has noticed an improvement of the patient's shoulder stability and mobility. By perfecting the functional reeducation techniques through kinetic programs, as well as a better cooperation patient-medic, all of these have lead to an improvement of the recovery in the limits of the functional arrear of each patient.*

Key words: *kinetotherapy, scapulohumeral periarthritis.*

1. Introduction

Kinetotherapy is the study of the articular and neuromuscular mechanisms that have an important role in the human's normal motile activities. It represents a therapeutical specialization, a core part of the physical medicine that uses as methods: movement, heat, electricity, climate, massage and water. It is one of the newest components of physical medicine and is based on consolidating or recovering the functions of certain parts of the human body, parts damaged by a trauma or disease [2].

Kinetotherapy is effectuated through different programs of medical recovery that have as a purpose the recovery of those diminished functions or the development of the functional level in different afflictions. It is an individual therapeutical form that uses programs of static physical exercises and dynamic exercises that can be used in the prophylactic therapeutical programs, the curative and the recovery ones [1]. The physical exercises have the role of maintaining health and leading to balance all the body's functions; therefore, movement favors maintaining the moral and physical forces, making it useful in the long term [4]. The physical exercise represents the main process of physical education and the long term practice of it contributes to the improvement of the human body's structure and functionality [3].

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The functional medical activity of the shoulder's recovery is complex and is done in different places: specialized ambulatory, recovery hospitals, spas, etc.

The scapulohumeral periarhfrthritis is also known as a clinical syndrome, where the pain appears, the functional impotence of the shoulder, in different degrees of movement, due to the pathological processes that affect the periarticular tissues (ligaments) and – in some cases – the articular capsule [6]. The scapulohumeral periarthritis are among the most common afflictions, for the patients going to the doctor, thus being quite common in both sexes, to active age persons, with a maximum incidence in people over 40 years old [5].

This term, periarthritis, highlighting that fact that the periarticular structures are affected, is in some cases incompatible with reality, without being an infectious process, but an inflammatory one. Different classification appear regarding the notion of scapulohumeral periarthritis, the classifications being don depending on different authors, thereby the French rheumatology doctors have established the following clinical forms: the simple painful shoulder, the acute painful shoulder (hyperalgesic), the mixed shoulder, the blocked shoulder and the pseudoparalitic shoulder [7].

The main objective of this research is proving the essential role of kinetherapeutical intervention immediately after the diagnosis and the importance of a recovery kinetotherapy program for a better and optimal functioning of the shoulder articulations, thus creating a path for the patient's independence and his/her reintegration in the daily activities and in the society.

The purpose of the study aims at the recovery of the shoulder's functionality but also restoring an optimal state of health by observing the evolution of the articular amplitude and muscular force of this articulation.

2. The Hypothesis

One claims that a kinetotherapy program done based on the degree of the affliction's seriousness and the level of individual recovery can ensure the recovery of the scapulohumeral articulation's functionality and mobility almost to the normal levels expressed by the movement's amplitude and the muscular balance in the scapulohumeral articulation.

The research has been done on a period of 6 months, comprising of 3 subjects of feminine sex with ages between 42 and 55, having the same diagnosis, scapulohumeral periarthritis, but with a different articular state, the patient M.E. has the articular stiffness, the patient A.N. has a shoulder blockage, and patient M.C. has painful shoulder. The proposed kinetotherapeutic program: the recovery program has been done individually, the patients having close ages and similar diagnoses (scapulohumeral periarthritis); the duration of exercises: 25 minutes.

The treatment of scapulohumeral periarthritis has had as a main purpose the calming of pain, fighting the inflammation and the tendency in fibrosis and healing the articular mobility through physical exercises. Through auxiliary therapy such as: the medication treatment, the decontracturant treatment with central or peripheral action, the effect was of muscular relaxation. The physical methods, the local physiotherapy by using the ultrasound in the place of pain, through applications on the superficial and accessible ligaments or on the deltoid and biceps, all of these have been useful as well. From the electrotherapy procedures the most effective ones have been the diadynamic currents, the associated galvanic current, and the ion galvanization.

One has also used the treatment of short waves, interferential currents and the massage technique in the scapulohumeral periarthritis.

3. Methods of the Research

- The evaluation of pain according to AVS;
- The evaluation of the articular balance;
- The muscular testing;
- Observing the effects of the recovery treatment by monitoring the evolution of the functional indicators for each 3 patients, the latter being diagnosed with scapulohumeral periarthritis and having the particularities mentioned in the table.

The evaluation charts contain: diagnosis, age, anthropometrical data, articular balance, muscular testing.

4. Presenting the Data of the Research

From the research the results have been interpreted graphically or in parallel columns, therefore two evaluations have been done, before and after the recovery treatment; the obtained results depend on the individual parameters.

The intensity of pain has been appreciated with the help of an Analogical Visual Scale (AVS). The pain has been perceived by all patients and with an initial increased intensity; in patient 1,. the pain being maximum, while in the end of the evaluation having 4 points; in patient 2. the pain was of 8 points initially moving to 2 point in the end, whereas in patient 3. the pain was 9 points initially and 4 point in the end. The pain has been controlled through medication and the kinetotherapy program so that at the end of the study one has registered a significant diminishing of pain intensity, almost to normal levels.

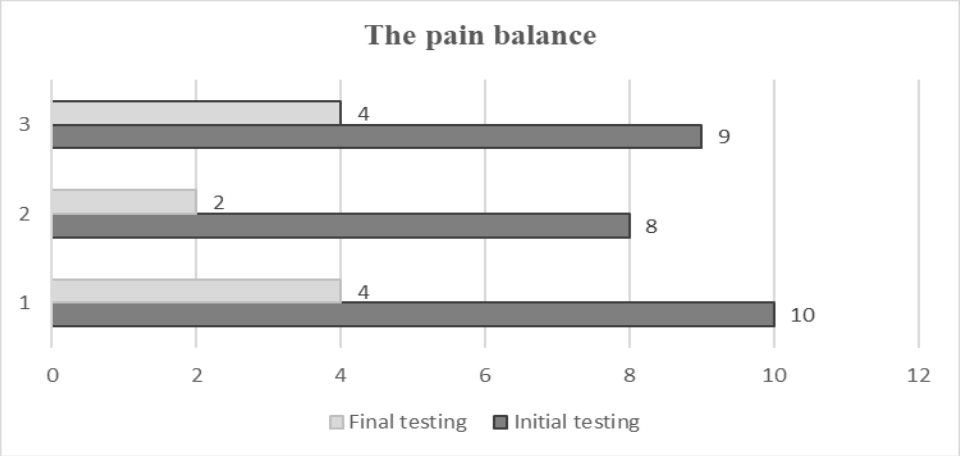

Fig.1. *Presenting the pain balance data in all 3 subjects*

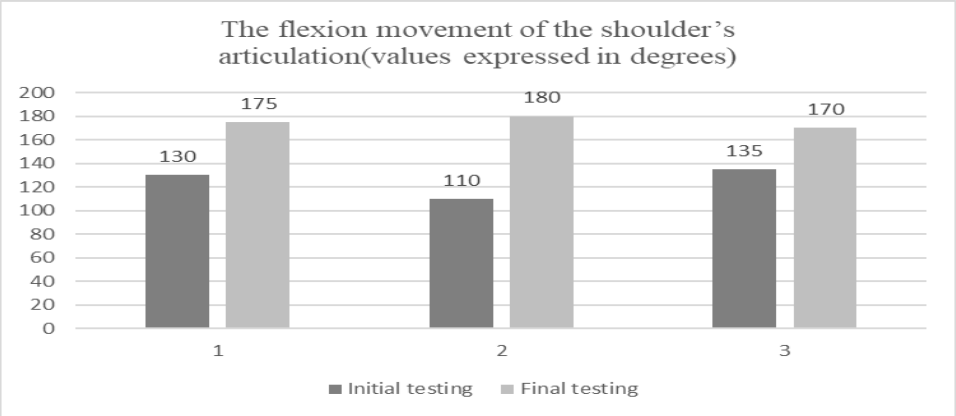

Fig. 2. *The values of the articular balance in all 3 subjects in the flexion movement of the shoulder's articulation*

To what the scapulohumeral articulation flexion is concerned one has registered a significant increase of mobility, thus from the initial testing to the final one as follows: the first patient with 35°, the second patient with almost 70° and the third patient with a movement amplitude of almost 45°; thus, all three patients have had a progress in the flexion procedure.

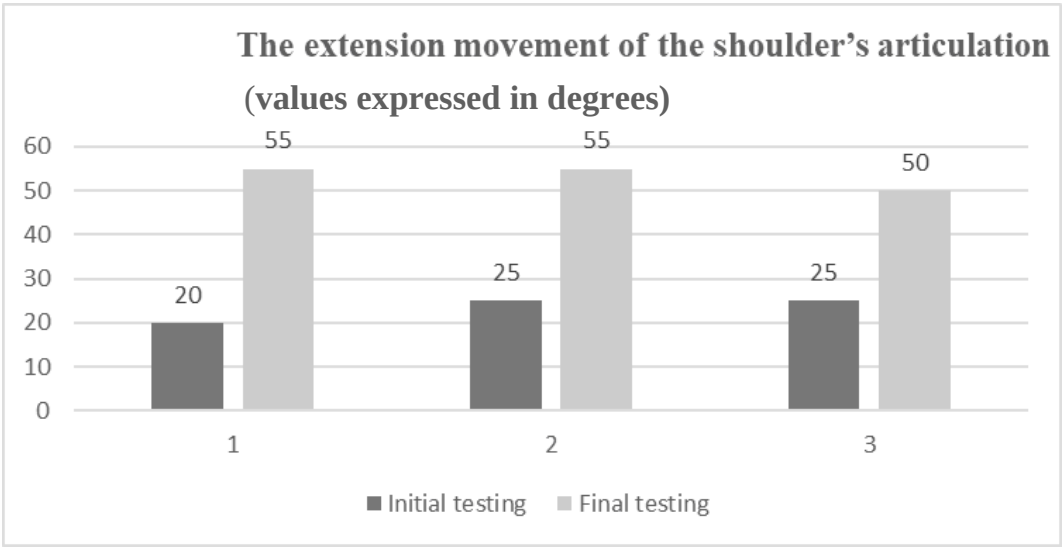

Fig. 3. *The values of the articular balance in all 3 subjects in the extension movement of the shoulder's articulation*

The extension movement of the scapulohumeral articulation has been less difficult to recover, here also registering visible increases in the final testing: in patient 1 the extension has grown with 25°, in patient 2. with 30° and in patient 3. with 35° compared to the initial testing.

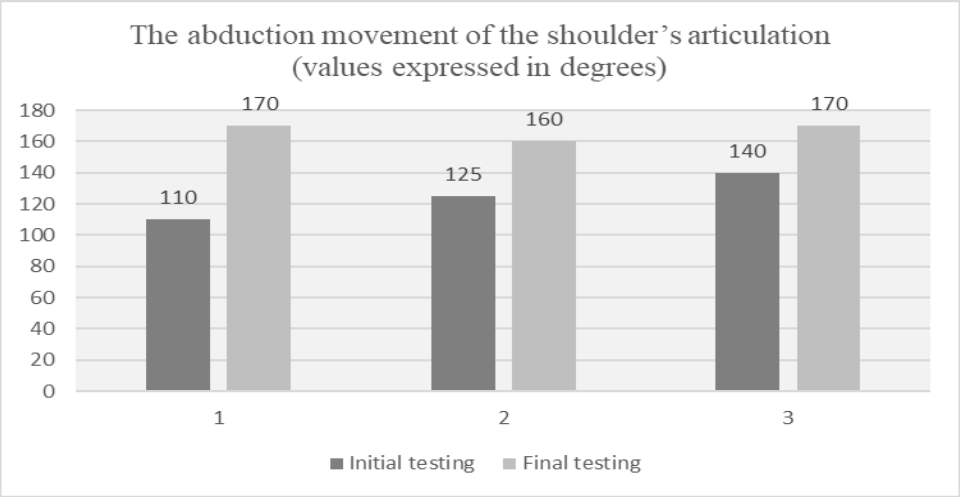

Fig. 4. *The values of the articular balance in all 3 subjects in the abduction movement of the shoulder's articulation*

In the abduction movement of the scapulohumeral articulation one has registered significant increases of values in the final testing compared to the initial one. Therefore, in the first patient there has been an increase of 30, in the second patient of 35° and in the third patient of 60°.

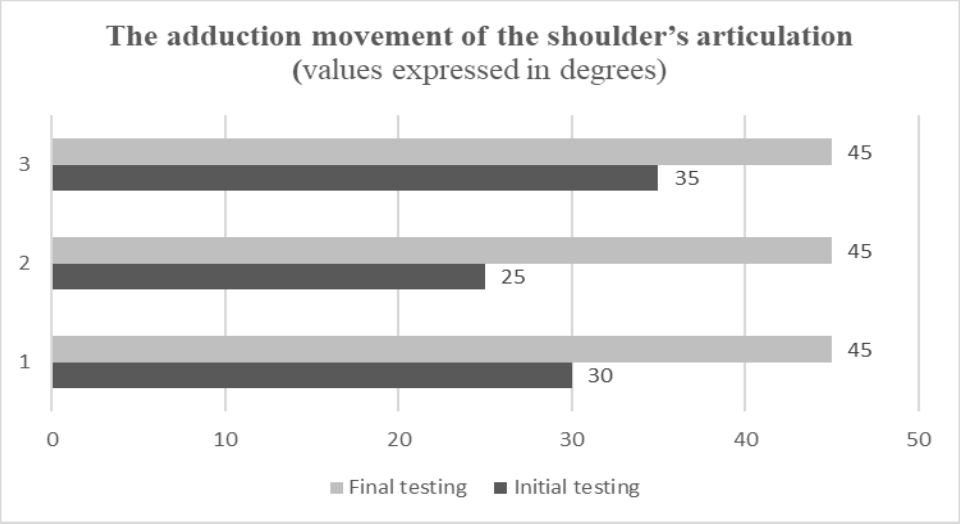

Fig. 5. *The values of the articular balance in all 3 subjects in the adduction movement of the shoulder's articulation*

At the moment of the scapulohumeral adduction measurement one has noticed that even here there has been significant progress from the initial to the final testing. The first patient,., had an increase of almost 10°, the second patient, ., 20° and the third patient,., 15°.

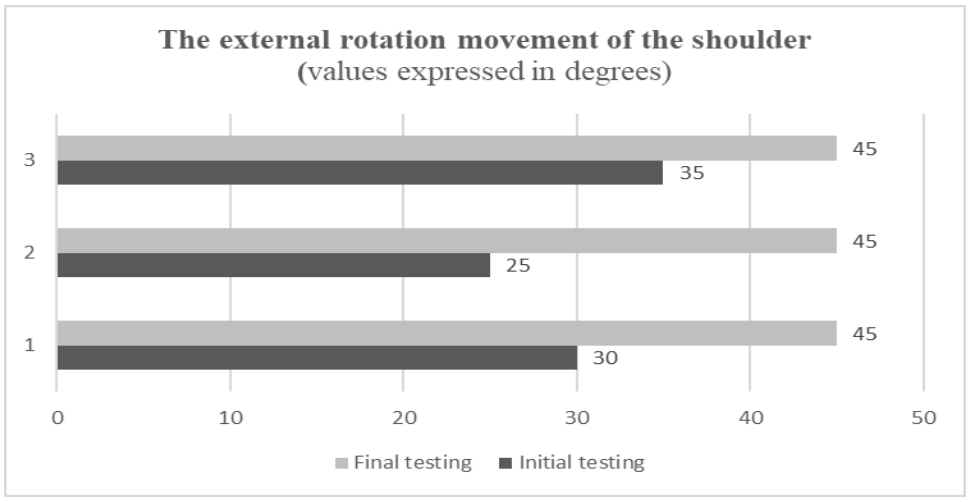

Fig. 6. *The values of the articular balance in all 3 subjects in the external rotation movement of the shoulder*

The healing of the external rotation movement of the scapulohumeral articulation has been difficult, though there have been increases from the initial to the final testing: the first patient had an increase of mobility with 30°, the second patient 45° and the third patient 30°.

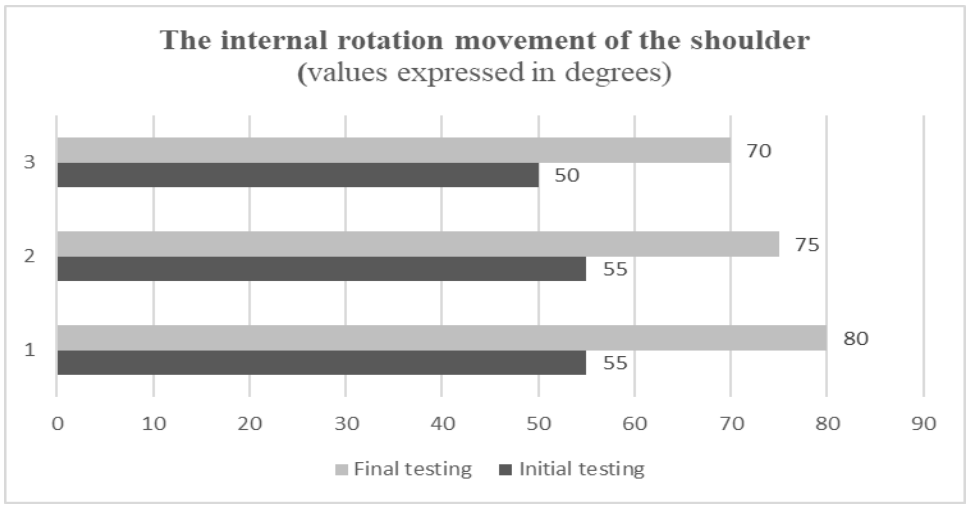

Fig.7. *The values of the articular balance in all 3 subjects in the internal rotation movement of the shoulder*

After doing the kinetotherapy program, after the measurements, the internal rotation movement of the scapulohumeral articulation has also had increases in the individual evolution of the patient; thus the first patient has had an increase of 20°, the second one still 20° in the internal rotation movement while the third an increase of 25°.

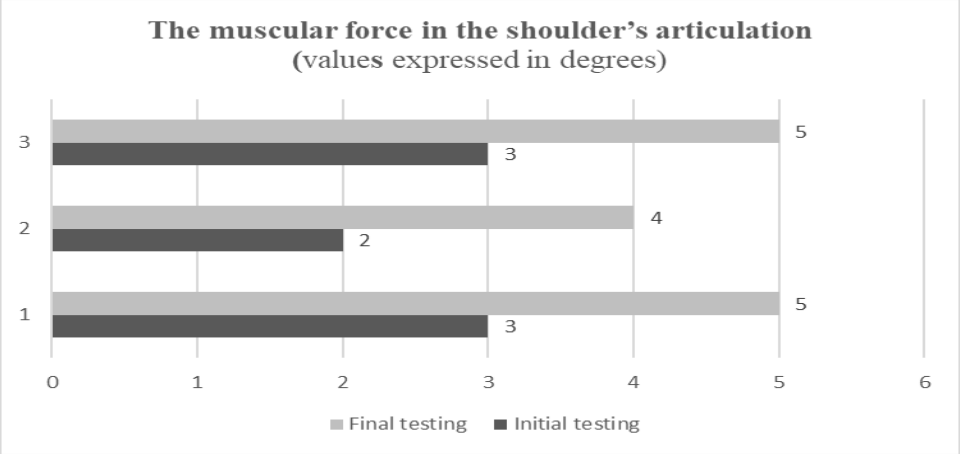

Fig. 8. *Presenting the dynamic values of the muscular force in the shoulder's articulation*

After this in observing the evolution of the recovery treatment in the patients with scapulohumeral periarthritis, one has noticed that the patients have acquired an almost normal force in the movement axes, so that patient 1, has had an increase of force from F3 to F4-F5 while the articulation mobility being normal; in patient 2, the force has moved from F2 to F4 with normal articulation mobility and in patient 3, from F3 to F4-F5 with also normal articulation mobility.

5. Conclusions

After applying the kinetotherapy programs one has noticed that one from the three patients has had difficulties in the extension movement of the shoulder, while two of them have had a slighter easier internal and external rotation of movements. Furthermore, in the study subjects the program of kinetotherapy has decreased the duration of the recovery treatment, the social factor becoming a therapeutical one. A significant decrease in pain intensity has been noticed in 2 out of 3 subjects both during the exercises and after the end of the exercises, also with a better coordination of the respiratory movements done simultaneously with the exercises. In all 3 patients one has noticed amplitude of movement during the reeducation program, while 2 of the patients have done much better the usual movements. From the study case we have observed that recovering the functionality of the scapulohumeral articulation creates favorable premises for recovering the functional balance of the shoulder. The inflammatory processes as well as the periarticular one represents the most important impediment for kinetotherapy activities for it slows down the patient's recovery evolution. The complete recovery after scapulohumeral periarthritis can last even years, so this study tries to show how important is starting a kinetotherapy program in good time based on the well defined and simple protocol, composed of kinetotherapy techniques easy to do and relatively not numerous so that after approximately a few weeks one notices better results regarding the shoulder's articulation mobility, as well as the improvement of muscular force.

Avoiding passive and prolonged immobilization an starting an early reeducation, these have a fundamental role for reeducation starts immediately with static kinetotherapy procedures that aim to maintain the muscular and articular tonus.

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