THE OLIVEIRA FULL FUNCTIONAL RECOVERY METHOD (MORFT®) AND ITS RESULTS IN THE RECOVERY OF PATIENTS WITH LUMBAR DISC HERNIATION

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ABSTRACT

The Oliveira Full Functional Recovery Method (MORFT®) uses preventive, compensatory and corrective exercises specially developed for the method. For the last 28 years, it has been used in public health to assist in the recovery of a large population group affected by lower back pain. Lower back pain is one of the leading causes of lost work time around the world, with a significant impact both on the individual and the national economy. The goal of this study was to observe the effect and results of MORFT® exercises and their established stretching times in the recovery of patients with lumbar disc herniation. This study was performed for 20, 30 and 40 sessions on a sample of 44 patients diagnosed using nuclear magnetic resonance and pain symptoms. The material used consisted of the Morftaco® (a device developed and patented for practicing the MORFT®), couches, chairs, timers and mats. The Numeric Pain Scale (NPS) was used to quantify the results in the recovery of functional capacity. It was found that 95.45% of the sample was completely symptom-free by the end of the treatment period, while 4.55% had symptoms scoring less than 1 out of 10 on the NPS. Thus, MORFT® is an effective conservative therapy tool for the recovery of patients with lumbar disc herniation.

INTRODUCTION

Lower back pain is considered to be an extremely common health problem and, irrespective of the population's socio-economic level, it is one of the main causes of lost work time and temporary or permanent absence from work activities due to functional incapacity. It causes significant losses to the State and is considered a worldwide public health problem (GUISADO, 2006b; LONG et al., 1996). It is an established fact that lumbar disc herniation (LDH) is highly prevalent and the most common cause of lumbar and radicular pain. The aetiology of this pain is multifactorial and may be due to mechanical causes, degenerative factors or even psychosomatic disorders (RULL, 2001). One of the disorders associated with lower back pain is muscle imbalance (SANTOS et al., 2012).

A number of authors have sought to explain the mechanism for the pain caused by a LDH (MARTÍNEZ-QUIÑONES et al., 2010). Some say that symptom remission is directly related with regression of the hernia (FANDIÑO, 2000). Different events have been described, such as disc resorption, desiccation and phagocytosis, in which patients with LDH show a disc regression confirmed in successive magnetic resonance (MR) scans, with clinical improvement in most cases. The mechanisms that lead to the morphological changes in the disc that in turn lead to disappearance of the LDH and clinical improvement have yet to be fully explained (GHISI, J. et al., 2006).

In the search for possible solutions to the problem, a number of conservative therapy (NEGRELLI, 2001) proposals have been made. It is along these lines that we present this study and its results obtained using the Oliveira Full Functional Recovery Method (MORFT®). This method was developed in Brazil 28 years ago and has been tested in more than 14 countries, with results available from thousands of cases treated to date in functional recovery sessions. The MORFT® seeks to restore the lost balance between elasticity, flexibility, resilience and

strength. It studies the causes contained within the effects in order to solve the problems caused by the biomechanical and biochemical imbalance of the intervertebral disc. The MORFT® is based on preventive, compensatory and corrective exercises; it is an active recovery process with an application protocol divided into two phases: the first is the so-called decompression phase and consists solely of stretching exercises; the second phase, added to the first phase, is the so-called strengthening phase, and consists of muscle strengthening exercises. The aim of this study was to observe the influence and results of the MORFT® exercises in the recovery of LDH patients and relief of pain symptoms, using stretching exercises involving the gastrocnemius, gluteal, ischiotibial and lumbar muscle groups, corresponding to the first phase of the MORFT® session's recovery protocol. The second, strengthening phase is recommended for those who, now pain-free, start to strengthen muscle groups to give greater support to the spinal column in general and the affected area in particular, with the aim of maintaining the results achieved and preventing relapses in the future (FRANÇA, 2008; ESCAMILLA et al., 2010; GUISADO, 2006a). This is outside the scope of the present study but may be the subject of future studies.

MATERIAL AND METHODS

This study used descriptive statistics to analyse the sample applying the study variables, giving the results as percentages. The information was obtained from August 2011 to October 2013 from the retrospective review of the case records of 44 patients who followed the MORFT® for a minimum of 20 and a maximum of 40 sessions at the Instituto MORFT®, in the city of Las Palmas de Gran Canaria, Spain. The inclusion criteria were: Patients with LDH diagnosed by MR affecting L2-L3, L3-L4, L4-L5 and/or L5-S1, accompanied by an X-ray report, with pain symptoms rated on the Numeric Pain Scale (NPS), who had signed their informed consent to take part in the study, and who had not received any other treatment or recovery method (conservative or otherwise) for back pain during the study period. Patients with psychiatric disorders, who had undergone spinal surgery, with canal stenosis, spondylolisthesis or other lumbar spine diseases, patients treated with analgesics, anti-inflammatory drugs or muscle relaxants during the study period or who had undergone intradiscal oxygen-ozone therapy sessions were not included.

The material used was the following: couches, chairs, timers, mats and the Morftaco®, a device developed and patented for practicing the MORFT®. This device is included in the Nice classification of goods and services under class 10 (rehabilitation and/or functional recovery apparatus) and class 28 (gymnastic and sporting articles for compensatory and corrective physical activities). To quantify the recovery of functional capacity and assess the pain symptoms, the NPS was used. This is a printed scale with ruler-like markings divided into 10 parts, scored from 0 to 10, and then further subdivided into tenths for a more precise evaluation of the patient's pain level. At one end, it is written "no pain", represented by the score 0, and, at the other end, it is written "unbearable pain", represented by the score 10. This scale was chosen because it is easy to understand, quick to apply and provides self-reported numeric information about the level of pain in the affected area, with the possibility of processing the results statistically.

PROCEDURE

The study was carried out through the application of the MORFT® protocol. Initially, each subject was interviewed in order to collect data through the anamnesis, specifically including information about the painful areas. Subsequently, after walking for 5 minutes, the patients numerically scored the level of pain on the NPS. The pain assessments for each of the painful areas defined at the baseline were recorded at the start and end of each session, after performing the exercises, obtaining the results for sessions 1, 10, 20, 30 and 40.

The minimum study duration was 20 sessions and the maximum was 40 sessions. Some patients were completely symptom-free by session 20 or 30 and it was not necessary to continue to session 40. The sessions lasted for 90 minutes; the patients attended the sessions for 5 consecutive days a week, for a minimum of 4 weeks and a maximum of 8 weeks.

The exercises used are part of the MORFT® method's protocol. After 28 years of practice, observing the results achieved with different stretching times for the recovery of LDH patients, it was decided to apply times of 2 and 3 minutes for the stretching exercises, always with 2 minutes walking between one exercise and the next, except for the lumbar exercises, where the patient spends 1 minute lying on his/her back between exercises. Static active stretching exercises of the gastrocnemius, ischiotibial, gluteal and lumbar muscles are performed.

For stretching the gastrocnemius muscles, the Morftaco® was used, where the patient stands with one foot on one end of the Morftaco®, with the heel on the floor and the ball of the foot on top of the device's crosspiece, with the knee in full extension. The other foot is placed on the other end, with the heel on the crosspiece and the ball of the foot on the floor in front, with the knee of that leg in the fullest flexion allowed by the posture. When the right foot is positioned behind the Morftaco®, the right hand and left forearm press against the wall, with the forehead resting on the forearm. After the rest period, the exercise is repeated swapping leg positions, but now for 3 minutes.

For the ischiotibial muscles, we use a chair with a seat height of 45 cm. The patient has one foot on the floor and the other with the heel resting on the chair. Keeping this foot in dorsiflexion, the patient bends slightly forward, with both knees in the maximum extension possible and the opposite hand from the foot on the chair holding a bar or handrail for support. After the rest period, the exercise is repeated with the other leg on the chair. As a variant of the exercise, it is performed for 3 minutes but now with external rotation of the leg on the chair.

For stretching the gluteal muscles, the patient sits on the chair, with his/her back fully against the chair back and one leg crossed over the other, with the heel resting on the thigh, close to the knee. The patient holds the crossed knee with both hands, pulling towards the contralateral shoulder. After the rest period, the exercise is repeated with the other leg. After that, a variant is performed with the patient sitting on a mat on the floor, with one knee flexed and the other leg crossed over that knee, holding the position for 3 minutes for each gluteal muscle.

For the lumbar muscles, the patient lies supine on a couch, with the head raised 20-25º and one knee flexed 90-100º. The patient then grips the other knee with both hands and pulls towards the ipsilateral shoulder. The patient rests for 1 minute without getting off the couch, and then repeats the exercise swapping legs. This is followed by a variant in which, while holding the knee with both hands, the patient rests the other leg on the thigh of the flexed leg in a crossed posture and pulls the knee towards the sternum. The exercise is then repeated swapping legs and, upon completing the exercise, the patient gets off the couch and walks for 2 minutes for the end-of-session assessment.

STATISTICAL ANALYSIS

Microsoft Excel Office 2011 was used to process the data. This enabled a descriptive statistics to be performed for analysing the sample applying the study variables. The results are given in per cent.

RESULTS

The lesion's location in the 44 patients was distributed as follows: 50% of the LDH cases in L5-S1, 37.5% in L4-L5, 10.42% in L3-l4 and 2.08% in L2-L3; 23 subjects (52.27%) were male, aged between 31 and 74 years (average, 47.78 years), and 21 (47.73%) were female, aged between 25 and 72 years (average, 42.95 years).

For data analysis, the NPS was subdivided into 3 sub-ranges: 0.1 to 3.9; 4 to 6.9; and 7 to 10. To obtain the results, the variables “Nº patients with 0”, “Nº patients with 0.1 to 3.9”, “Nº patients with 4 to 6.9” and “Nº patients with 7 to 10” were crossed with the variable “Session Nº”. The variable “Nº patients with 0” gives the number of patients who become pain-free and remain completely pain-free until their last session.

Table 1 shows the evolution of the patients’ pain symptoms (in per cent), as assessed at the start of each treatment session with the MORFT®. Session 1 gives the patient's baseline condition at the start of treatment. It can be seen, as the sessions progress, that the percentages in the pain sub-ranges decrease. Thus, in Session 20, 68.18% (30 of the 44 patients) are completely symptom-free from the start of this session and 31.82% (14 patients) have a pain score between (0.1 and 3.9). From Session 20 onwards, there are no patients with pain scores above these values. These results are shown in graph form in Figure 1.

Table 1: Percentage improvement in pain symptoms at the start of the session.

	Total patients per session	Nº patients with 0		Nº patients with a score from 0,1 a 3,9		Nº patients with a score from 4 a 6,9		Nº patients with a score from 7 a 10	
Session 1	44	0	0 %	21	47,73%	19	43,18%	4	9,09%
Session 10	44	15	34,09%	28	63,64%	1	2,27%	0	0 %
Session 20	44	30	68,18%	14	31,82%	0	0 %	0	0 %
Session 30	33	23	69,70%	10	30,30%	0	0 %	0	0 %
Session 40	29	21	72,41%	8	27,59%	0	0 %	0	0 %

Figure 1: Evolution of pain symptoms at the start of the session.

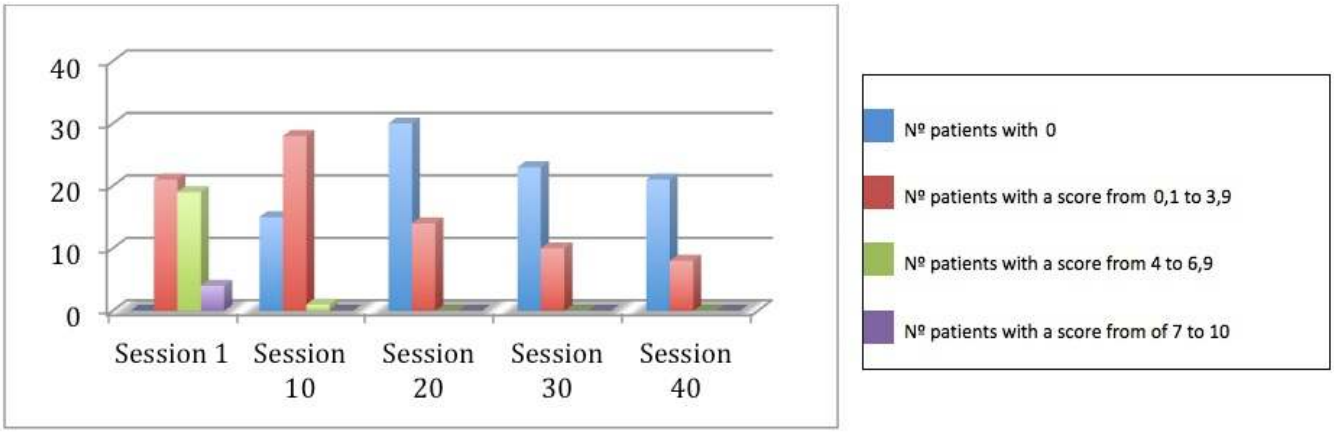
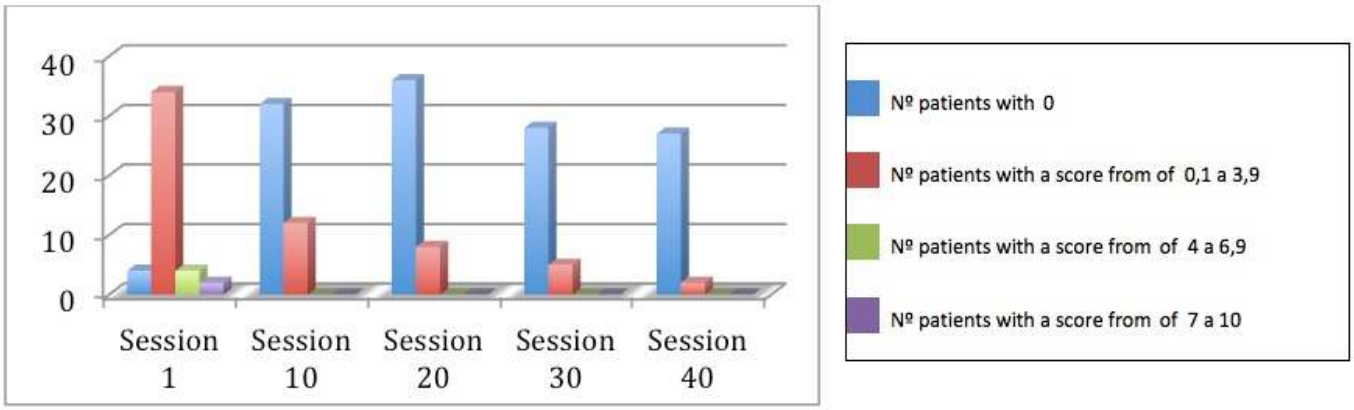


Table 2 shows the changes in the patients' pain symptoms (in per cent) at the end of each session. Compared with the baseline, there are a higher number of patients with 0, that is, the number of patients who end the session completely symptom-free. A decrease in pain symptoms is also seen in the other sub-ranges. At the end of Session 20, with all the sample (44 patients) still included, 81.82% (36 patients) were completely pain-free at the end of this session and in 18.18% (8 patients), the pain score had fallen to the sub-range of 0.1 to 3.9. There were no patients with pain above these values from Session 10 to Session 40. These results can be seen in graph form in Figure 2.

Table 2: Percentage improvement in pain symptoms at the end of the session.

	Total patients per session	Nº patients with 0		Nº patients with a score from 0,1 a 3,9		Nº patients with a score from 4 a 6,9		Nº patients with a score from 7 a 10	
Session 1	**44**	4	9,09 %	34	77,27%	4	9,09%	2	4,55%
Session 10	**44**	32	72,73%	12	27,27%	0	0 %	0	0 %
Session 20	**44**	36	81,82%	8	18,18%	0	0 %	0	0 %
Session 30	**33**	28	84,85%	5	15,15%	0	0 %	0	0 %
Session 40	**29**	27	93,10%	2	6,90%	0	0 %	0	0 %

Figure 2: Evolution of pain symptoms at the end of the session.



In view of the results obtained, it can be stated that the MORFT® is effective in the treatment of LDH in the entire sample (44 patients); 95.45% (42 patients) ended the treatment completely symptom-free and 4.55% had an average score less than 1 out of 10.

DISCUSSION

We have seen complete disappearance or a significant reduction in the pain symptoms experienced by the study group in a short period of time, during which all the patients responded positively to the MORFT® stretching programme, recovering their functional capacity and enabling them to return to their work and social activities within a maximum period of 40 sessions. Of the study sample of 44 subjects, 42 (95.45%) ended the study with zero symptoms according to the NPS and 2 (4.55%) ended the study with a score less than 1 out of 10. 36 subjects (81.82%) of the total sample were already symptom-free by session 20. We stress that the two basic factors for the results obtained with application of the MORFT®, confirmed with 28 years of practice in the use of the method, were the times of 2 and 3 minutes that the patients held each stretching posture and the muscle chain on which these stretches were applied.

The lack of scientific publications analysing the effect of holding the stretching postures for 2 minutes or more and their effects on different muscle groups in the functional recovery from LDH suggests new avenues for research which would increase our understanding in this area.

In general, within the field of recovery from lower back pain, complete rest is contraindicated as it prolongs the back pain and unfitness for work. Accordingly, several authors recommend maintaining the greatest level of physical activity that the pain allows and, if bed rest is necessary, this should last no longer than 2-4 days, since it is estimated that each day of

bed rest reduces muscle strength by 2% (GUISADO, 2006b; LÓPEZ-SASTRE; CANDAU, 1999; PATEL; OGLE, 2000). Physical exercise aimed for therapeutic purposes plays a major role in disc nutrition (CASAJUANA, 2011) and maintaining the patient's physical condition. This suggests that active conservative therapies, based on physical exercises, would be more beneficial for the patient with LDH than passive conservative procedures, such as cryotherapy, thermotherapy, mechanotherapy, electrotherapy and massage, among others (LÓPEZ-SASTRE; CANDAU, 1999). This could provide fields of study for further research.

In pursuing the best results in recovery from and prevention of disc lesions, it is necessary to understand the mechanisms that may trigger this lesion and its resulting pain. Studies that perform comparative analyses of the causes of a disc lesion (FERRECUTTI, 2004) show that high-intensity forces cause vertebral lesions and repetitive, low-intensity forces cause wear on the disc material, also disrupting its biochemical balance.

Some authors mention biochemical factors influencing the pathogenesis of lower back pain. These include those that cause the inflammatory processes that irritate and sensitise the nerve roots affected by the intervertebral disorder. This pain mechanism may be considered to be chemical or immune (RULL et al., 2001). However, with this study, we have observed that during the patient's biomechanical and postural rebalancing process, pain symptoms decrease immediately and in direct proportion to the exercise performed for 2 or 3 minutes, at a speed that prevents absorption of the biochemical factors mentioned by other authors as possibly responsible for the pain symptoms. The exact cause of the pain experienced in a LDH is a question that would need to be answered in future research.

CONCLUSION

With this study, we have seen that the MORFT® is an effective method for use in conservative therapy, with a high success rate in reducing pain and enabling the functional recovery of patients with LDH. Thus, 95.45% of the study sample experienced complete disappearance of the pain symptoms and maintenance of their pain-free status.

Keywords: Lumbar disc herniation. Stretching. MORFT.

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THE OLIVEIRA FULL FUNCTIONAL RECOVERY METHOD (MORFT®) AND ITS EFFECTIVENESS RESULTS IN THE RECOVERY OF PATIENTS WITH LUMBAR DISC HERNIATION

ABSTRACT

The Oliveira Full Functional Recovery Method (MORFT®) uses preventive, compensatory and corrective exercises specially developed for the method. For the last 28 years, it has been used in public health to assist in the recovery of a large population group affected by lower back pain. Lower back pain is one of the leading causes of lost work time around the world, with a significant impact both on the individual and the national economy. The goal of this study was to observe the effect and results of MORFT® exercises and their established stretching times in the recovery of patients with lumbar disc herniation. This study was performed for 20, 30 and 40 sessions on a sample of 44 patients diagnosed using NMR and reported pain symptoms. The material used consisted of the Morftaco® (a device developed and patented for practicing the MORFT®), couches, chairs, timers and mats. The Numeric Pain Scale (NPS) was used to quantify performance the results in the recovery of functional capacity. It was found that 95.45% of the sample was completely symptom-free by the end of the treatment period, while 4.55% had symptoms scoring less than 1 out of 10 on the NPS. Thus, MORFT® is an effective conservative therapy tool for the recovery of patients with lumbar disc herniation.

Keywords: Lumbar disc herniation. Stretching. MORFT.

LA METHODE OLIVEIRA DE RECUPERATION FONCTIONNELLE TOTALE (MORFT®) ET SES RESULTATS DANS LA RECUPERATION DE PATIENTS SOUFFRANT DE HERNIE DISCALE LOMBAIRE

RÉSUMÉ

La Méthode Oliveira de Récupération Fonctionnelle Totale (MORFT®) est basée sur des exercices physiques préventifs, compensatoires et correctifs propres à la méthode. Il existe une collaboration depuis 28 ans avec la santé publique, ce qui a permis la récupération d'un secteur important de la population souffrant de nos jours de douleurs lombaires, l'une des principales causes d'absentéisme mondial dû à un congé maladie. Cet absentéisme a des répercussions négatives autant sur l'individu lui-même que sur son pays. L'objectif de la présente étude a été de suivre l'influence et les résultats des exercices de la MORFT®, ainsi que le temps établi d'étirement dans la récupération de patients souffrant de hernie discale lombaire. Le travail s'est déroulé sur 20, 30 et 40 séances, et pour un échantillon de 44 patients pour lesquels une RMN et la symptomatologie douloureuse avaient permis de poser le diagnostic. Le matériel utilisé a été d'une part le Morftaco® (dispositif conçu et breveté pour la pratique de la MORFT®), d'autre part des tables de kinésithérapie, des chaises, des chronomètres et des tapis de sol. C'est l'Échelle numérique de la douleur (END) qui a servi à quantifier les résultats de la récupération de la capacité fonctionnelle. Ces derniers ont révélé que 95,45 % des personnes de l'échantillon étaient entièrement asymptomatiques au terme de l'étude et que 4,55 % présentaient une symptomatologie inférieure à la note de 1 sur 10 par l'END. On constate donc l'efficacité de la MORFT® et son grand intérêt comme outil pour le traitement conservateur dans le processus de récupération de patients souffrant de hernie discale.

Mots clés : Hernie discale lombaire. Étirement. MORFT.

EL MÉTODO OLIVEIRA DE RECUPERACIÓN FUNCIONAL TOTAL (MORFT®) Y SUS RESULTADOS EN LA RECUPERACIÓN DE PACIENTES DE HERNIA DISCAL LUMBAR

RESÚMEN

El Método Oliveira de Recuperación Funcional Total (MORFT®) aplica ejercicios físicos preventivos, compensatorios y correctivos propios del método, que colabora, hace 28 años, con la salud pública, a través de la recuperación de una parcela importante de la población que hoy en día se ve afectada por el dolor lumbar, una das mayores causas de absentismo mundial y baja laboral, que provoca grandes prejuicios para el individuo y su país. El objetivo del presente estudio fue observar la influencia y los resultados de los ejercicios del MORFT® y su tiempo establecido de estiramiento en la recuperación de pacientes de hernia discal lumbar. Esta investigación se realizó durante 20, 30 y 40 sesiones, con una muestra de 44 pacientes diagnosticados a través de RMN y sintomatología dolorosa. Como material se utilizó el Morftaco® (dispositivo desarrollado y patentado para la práctica del MORFT®), camillas, sillas, cronómetros y colchonetas. Para cuantificar los resultados de recuperación de la capacidad funcional se utilizó la Escala Numérica del Dolor (END). Finalmente, se constató que 95,45% da muestra finalizó totalmente asintomática y 4,55% con sintomatología inferior la puntuación de 1 sobre 10 por la END. Se observa la efectividad del MORFT® y su colaboración como herramienta eficaz en el tratamiento conservador en el proceso de recuperación de pacientes de hernia discal lumbar.

Palabras Clave: Hernia discal lumbar. Estiramiento. MORFT.

O MÉTODO OLIVEIRA DE RECUPERAÇÃO FUNCIONAL TOTAL (MORFT®) E SEUS RESULTADOS NA RECUPERAÇÃO DE PACIENTES DE HÉRNIA DISCAL LOMBAR

RESUMO

O Método Oliveira de Recuperação Funcional Total (MORFT®) aplica exercícios físicos preventivos, compensatórios e corretivos próprios do método, que colabora, há 28 anos, com a saúde pública, através da recuperação de uma parcela importante da população que hoje em dia se vê afetada pela dor lombar, uma das maiores causas de absentismo mundial e baixa laboral, que provoca grandes prejuízos para o indivíduo e seu país. O objetivo do presente estudo foi observar a influência dos resultados dos exercícios do MORFT® e seu tempo estabelecido de alongamento na recuperação de pacientes de hérnia discal lombar. Esta investigação se realizou durante 20, 30 e 40 sessões, com uma amostra de 44 pacientes diagnosticados através de ressonância magnética e sintomatología dolorosa. Como material se utilizou o Morftaco® (dispositivo desenvolvido e patenteado para a prática do MORFT®), macas, cadeiras, cronômetros e colchonetes. Para quantificar os resultados de recuperação da capacidade funcional se utilizou a Escala Numérica de Dor (END). Finalmente, se constatou que 95,45% da amostra finalizou totalmente assintomática e 4,55% com sintomatología inferior a pontuação de 1 sobre 10 pela END. Se observou a efetividade do MORFT® e sua colaboração como ferramenta eficaz no tratamento conservador no processo de recuperação de pacientes de hérnia discal lombar.

Palavras-Chaves: Hérnia discal lombar. Alongamento. MORFT.