

Research

Physiotherapy Approach in Linear Scleroderma of the Lower Limb: A Case Report

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Abstract:

Linear scleroderma is a subtype of localized scleroderma that may affect deeper tissues, including fascia and muscle, leading to joint restriction, gait abnormalities, and functional impairment. Evidence based physiotherapy management in these patients remains limited. We report the case of a 17-year-old female with juvenile linear scleroderma affecting the left lower limb, involving dermatomes L3–L4 and fibrosis of the *m. Sartorius*, *m. Rectus femoris*, and *m. Vastus lateralis*. Previous medical treatment included systemic corticosteroids and methotrexate; however, long-term functional progress was limited, and treatment tolerance was poor. Before initiation of our physiotherapy intervention, no clearly visible functional or structural improvement had been documented. A five-month individualized physiotherapy program was delivered once weekly (60 minutes/session). Treatment consisted of myofascial release, manual therapy, proprioceptive neuromuscular facilitation, dry needling, static and dynamic cupping therapy, strengthening exercises, movement re-education, and a home exercise program including foam rolling. Following intervention, clinically meaningful improvements were observed in hip and knee mobility, lumbopelvic movement control, gait symmetry, and overall functional performance. Soft tissue quality improved, with reduced induration, increased mobility, and decreased visible contour irregularities of the affected thigh. The patient also reported improved well-being and easier participation in daily and sports activities. No worsening of disease status was observed during the treatment period. This case suggests that individualized physiotherapy may be an effective adjunctive treatment approach in juvenile linear scleroderma of the lower limb. Further research is required to determine optimal rehabilitation strategies and long-term outcomes.

Keywords: Linear scleroderma; Localized scleroderma; Morphea; Lower limb; Physiotherapy

1. Introduction

Scleroderma is a rare connective tissue disease characterized by skin thickening and induration resulting from excessive deposition of collagen and other extracellular matrix components, such as fibronectin, proteoglycans, and glycosaminoglycans. In systemic sclerosis, also known as progressive systemic sclerosis or generalized scleroderma, symmetrical skin thickening is often accompanied by internal organ involvement, which may lead to serious and potentially life-threatening complications. Localized scleroderma (morphea) represents a distinct clinical form of the disease characterized by an asymmetrical process of skin thickening and induration. The changes are usually confined to the skin. Recent studies suggest that, in certain cases, the localized form of the disease may also involve internal organs and is associated with varying degrees of clinical burden (Careta & Romiti, 2015; Falanga, 1989). Although the course of localized scleroderma is often relatively mild, the disease may cause permanent functional limitations and significant cosmetic deformities in some patients. Recognition of prognostic factors described in recent studies may substantially contribute to more appropriate management and treatment of these patients (Falanga, 1989).

1.1. Localized scleroderma

Morphea is characterized by skin thickening associated with increased collagen deposition within indurated lesions (Matsuura et al., 1997). Localized scleroderma is clinically classified into several subtypes, including circumscribed (limited) morphea, linear morphea, and generalized morphea. Extracutaneous manifestations are frequently present in patients, particularly in the juvenile form of the disease, and are associated with higher disease activity and reduced quality of life. Due to the complexity of the disease course, a multidisciplinary approach is often required in the management of these patients (Takahashi et al., 2025). Morphea usually follows a self-limited course, and spontaneous improvement may often occur within a period of 3 to 5 years. However, the risk of disease recurrence remains relatively high, even after a prolonged period of inactivity. This is particularly relevant in children with linear scleroderma or mixed forms of morphea, in whom long-term and careful clinical follow-up is essential (Asano et al., 2018; Careta & Romiti, 2015; Mertens et al., 2015). The clinical presentation of morphea is highly variable and includes several heterogeneous subtypes. Skin lesions may affect quality of life to varying degrees and, in some cases, may result in permanent physical and psychological consequences (Arkachaisri et al., 2010; Bielsa Marsol, 2013; Kroft et al., 2009). Owing to pain, fatigue, stigmatization, and the impact of the disease on daily life, together with reduced social support and acceptance, patients with morphea are at increased risk of developing psychological problems such as depression and anxiety (Kroft et al., 2009). Despite numerous available therapeutic options, treatment response varies among different morphea subtypes. Furthermore, there is still no clear consensus regarding the optimal choice of therapy, appropriate dosing, and treatment duration that would ensure good tolerability, minimal adverse effects, and maximum benefit for patients (Asano et al., 2018; Knobler et al., 2017; Zwischenberger & Jacobe, 2011).

1.2. Linear scleroderma

The linear subtype of scleroderma commonly occurs in children and young adults (Takahashi et al., 2025). Childhood-onset linear scleroderma is associated with a more severe clinical course compared with disease onset in adulthood (Asano et al., 2018). It is characterized by well-demarcated, unilateral linear or band-like sclerotic lesions, which are often slightly depressed and typically occur on the limbs, face, or scalp. The distribution of lesions frequently follows Blaschko's lines, supporting the hypothesis of a role for somatic mosaicism in disease pathogenesis. Lesions may extend into deeper tissues, potentially leading to atrophy of the subcutaneous fat, muscles, tendons, and bone. When the limbs are affected, deformities and joint contractures may develop. In children, impaired growth of the affected limb is also commonly observed (Takahashi et al., 2025). Linear scleroderma involving the frontal or frontoparietal region, with or without associated hemifacial atrophy, is referred to as *en coup de sabre* morphea. Parry-Romberg syndrome is characterized by hemifacial atrophy in the absence of sclerotic skin changes (George et al., 2020). The disease primarily affects adipose tissue, although in some cases it may also

extend to the bones and muscles, resulting in marked atrophy of muscular and fatty tissues. In such cases, cutaneous manifestations may be minimal or absent (Tollefson & Witman, 2007).

1.3. *Anatomical and pathological skin changes*

In scleroderma, the histological appearance depends primarily on the stage of the disease and the depth of pathological tissue involvement. In most cases, morphological changes are most pronounced at the junction between the dermis and subcutaneous tissue; therefore, an adequate skin biopsy specimen should also include subcutaneous tissue for proper histological evaluation (Careta & Romiti, 2015). In the early inflammatory phase of the disease, or in initial lesions that clinically often present with an erythematous component, histological findings are not yet characteristic of scleroderma, which may make definitive diagnosis challenging. During this phase, increased density and homogenization of collagen fibers may be observed. Treatment usually includes local therapeutic approaches, immunosuppressive medication, physiotherapy, and phototherapy (Hunzelmann et al., 1998). Although the effectiveness of physiotherapy in patients with morphea has not yet been sufficiently investigated, currently available evidence suggests that physiotherapy does not worsen the course of the disease and may be beneficial in maintaining range of motion and preventing joint contractures (Fett & Werth, 2011). Treatment of localized scleroderma should be initiated as early as possible, before complications occur, as the disease may lead to limited mobility and the development of deformities due to its potentially high morbidity. Assessment of disease activity is essential when selecting an appropriate therapeutic approach. Disease activity is evaluated on the basis of several clinical and laboratory indicators. Important signs include the appearance of new lesions or progression of existing lesions within the previous three months, which should be documented by a physician. Moderate to severe erythema of the lesion, the presence of an erythematous or violaceous border, and increased induration at the margins may also indicate active disease. An important marker of disease activity is progression of lesions into deeper tissues, which can be confirmed using imaging modalities such as photography, magnetic resonance imaging, or ultrasound. In addition, worsening hair loss on the scalp, eyebrows, or eyelashes, elevated creatine kinase levels in the absence of other pathological findings, and skin biopsy results confirming active disease may also indicate disease activity. Clinical signs of permanent tissue damage may include dermal atrophy, subcutaneous tissue atrophy, skin pigmentation changes in the form of hyperpigmentation or hypopigmentation, and increased skin thickness in the center of the lesion (Careta & Romiti, 2015).

1.4. *Assessment of skin changes in localized scleroderma*

For a comprehensive evaluation of skin changes in localized scleroderma, the Localized Scleroderma Cutaneous Assessment Tool (LoSCAT) is used. This instrument enables separate assessment of disease activity and the degree of permanent tissue damage. Disease activity is evaluated using the Localized Scleroderma Skin Severity Index (LoSSI), which includes several clinical parameters such as the extent of involvement, degree of erythema, skin induration, and the appearance of new lesions or progression of existing ones. Individual features are scored on a standardized scale from 0 to 3 across eighteen anatomical sites. The modified version of the index (mLoSSI) does not include assessment of the affected surface area. The Localized Scleroderma Skin Damage Index (LoSDI) is calculated as the sum of scores for dermal atrophy, dyspigmentation, and subcutaneous tissue atrophy. The Physician's Global Assessment (PGA) is used to evaluate overall disease activity and the extent of damage. It is based on a 100-mm visual analogue scale (VAS) (Arkachaisri et al., 2009).

1.5. *Treatment*

The management of localized scleroderma has become increasingly standardized in recent years, with methotrexate established as the first-line systemic treatment for more severe forms of the disease (Takahashi et al., 2025). In the early inflammatory phase, corticosteroids are also frequently used and are usually prescribed in combination with methotrexate. After an adequate therapeutic response has been achieved, methotrexate treatment is generally continued for at least 12 additional months in order to reduce the risk of relapse (George et al., 2020). Commonly reported adverse effects of methotrexate include nausea, fatigue, headache, hair loss, and hepatotoxicity (Albuquerque et al., 2019). In patients who do not achieve a satisfactory response to this treatment, targeted therapies are increasingly

being considered as promising alternatives, including abatacept, tocilizumab, and Janus kinase (JAK) inhibitors (Takahashi et al., 2025). Mycophenolate mofetil is used as an alternative therapeutic option in patients in whom methotrexate is contraindicated or in those who fail to respond adequately to methotrexate (George et al., 2020). Reconstructive procedures also play an important role in the management of late sequelae of the disease. These include autologous fat grafting, which is used for the treatment of atrophic changes (Takahashi et al., 2025). Advances in the understanding of disease pathogenesis and the development of new therapeutic options are creating opportunities for more effective and targeted treatment strategies, which may significantly improve long-term outcomes in patients with localized scleroderma (Takahashi et al., 2025). It is important that management is individualized according to disease severity and extent, with particular attention given to the risk of restricted mobility and the development of deformities (Kreuter et al., 2007).

1.6. *Orthopedic complications*

Orthopedic complications are common in patients with linear scleroderma and require particular clinical attention. In one study, such complications were present in more than 51% of children, while joint contractures were reported in 88% of affected patients. Importantly, these changes developed despite the use of immunosuppressive therapy, highlighting the need for early orthopedic involvement in the management of these patients (Schoch et al., 2018). According to the German guidelines, functional surgical procedures should be performed only during the inactive phase of the disease, generally several years after disease activity has ceased. In addition, concurrent physiotherapy management is recommended (with the exception of the acute inflammatory phase), focusing on improving mobility, strengthening muscles, performing functional exercises, manual lymphatic drainage, and massage (Kreuter et al., 2016).

1.7. *Role of Physiotherapy*

Physiotherapy is frequently included in the comprehensive management of patients with localized scleroderma, particularly in the presence of restricted mobility and joint contractures (Fett & Werth, 2011; Kreuter et al., 2016). Current evidence suggests that physiotherapy does not negatively influence the course of the disease and may contribute to maintaining mobility and reducing the risk of contracture development (Fett & Werth, 2011). Physiotherapy therefore plays an important role in preserving patients' functional capacity and represents an essential component of long-term rehabilitation (Kreuter et al., 2016). Despite its frequent use in clinical practice, however, the effectiveness of physiotherapy in patients with localized scleroderma has not yet been adequately investigated, highlighting the need for further clinical studies (Zwischenberger & Jacobe, 2011).

2. **Case presentation**

We present the case of a 17-year-old female patient with juvenile linear scleroderma involving the left lower limb, corresponding to L3–L4 dermatomes, with fibrosis of the left thigh sartorius, rectus femoris, and vastus lateralis muscles. The patient and her legal guardians provided written informed consent for the use of clinical data, medical documentation, and clinical photographs for the preparation and publication of this case report. The disease followed a chronic course with periods of relative stability and recurrent exacerbations. The patient was followed for several years in rheumatology, orthopedic, and pediatric outpatient clinics, and later received physiotherapy management. Earlier reports described localized induration of the skin and subcutaneous tissue with reduced soft tissue elasticity and movement limitations, primarily in the region of the left thigh and hip.

The first available specialist reports from 2021 described linear scleroderma with muscular fibrosis and reduced mobility of the left lower limb, although without significant pain or major impact on daily functioning. During an orthopedic examination in March 2021, tension along the quadriceps was noted during flexion of the left knee in the prone position, with compensatory pelvic tilt and movement restriction in the left hip, despite otherwise favorable functional status and a normally performed squat. Radiographic findings described compensatory deviation at the thoracolumbar junction, associated with lower limb asymmetry or the functional consequences of limited hip mobility. At that time, the clinical assessment suggested substantial improvement, although continued follow-up during growth was considered necessary.

In the following years, the patient remained physically active and free of significant pain; however, compensatory movement patterns gradually became more pronounced during growth. Reports from 2022 and 2023 described limited flexion of the left knee, reduced rotation of the left hip, spinal compensations during provocative movements, and movement asymmetry. At the same time, the patient did not report major difficulties in school or sports activities, although structural and functional changes indicating progression of the disease into deeper tissues were clinically present. Additional imaging was therefore indicated in 2023.

MRI of the left thigh in March 2023 confirmed involvement of deeper soft tissues. Changes in the subcutaneous tissue with propagation toward fascial and muscular structures were described, together with signs of fibrotic and/or inflammatory changes in the affected region. The MRI findings served as an important basis for further therapeutic decision-making, as clinical examination alone only partially reflected disease activity. Subsequent outpatient follow-ups repeatedly emphasized that the inflammatory process could not be reliably assessed on the basis of clinical findings alone, and that a combination of clinical examination and imaging was required.

In 2024, reports again described tissue tightness and reduced extensibility in the region of the left thigh and gluteal area, the appearance of striae, and persistent limitation of specific movements, particularly during flexion of the left knee in the prone position, which provoked compensatory adjustments of the pelvis and spine. Despite this, the patient remained free of persistent pain and physically active. At examination in March 2024, she was able to perform a squat; however, specific movements still triggered lumbopelvic compensations, and reduced hip rotation was noted. The condition was considered clinically stable, although continued monitoring was recommended due to the risk of further fibrosis and functional deterioration.

Due to clinical worsening, the patient was hospitalized in December 2024 for a second cycle of pulse corticosteroid therapy and was readmitted in January 2025 for a third treatment cycle. During these admissions, documentation described firmness and tightness of the affected left thigh, the appearance of new striae, and persistent restricted mobility, especially during specific movements, although overall somatic status remained stable. Ultrasound examination of the soft tissues did not demonstrate significant structural differences between sides. Laboratory testing on admission in January 2025 revealed elevated transaminases and aldolase levels, which began to decline by discharge. The discharge report noted clinical softening of the affected area, continuation of methotrexate and folic acid, and consideration of additional systemic therapy if disease activity persisted.

Physiotherapy represented an important part of management. A physiotherapy report from January 2025 described markedly restricted mobility of the left hip, particularly in flexion and rotation, and the need to maintain mobility of the hip and lumbopelvic region. Treatment focused on active mobility exercises, pelvic and trunk stabilization, breathing exercises, activation of the tensor fasciae latae, bridging exercises, and hip abduction exercises. At the final physiotherapy assessment during hospitalization, it was noted that the patient demonstrated good axial stabilization control, that major gait asymmetries were no longer present, and that she was able to correctly perform hip abduction exercises. Mild limitations remained in hip–trunk dissociation and internal hip rotation. Continuation of the home exercise program and further progression of the rehabilitation program at future follow-ups were recommended.

Based on the overall documentation, it can be concluded that the patient had a long-standing course of juvenile linear scleroderma of the left lower limb with marked soft tissue involvement, functional impact on lower limb movement and the lumbopelvic region, and episodes of clinical deterioration requiring intensified systemic treatment. Despite the absence of persistent pain, the clinically significant issues were restricted mobility, development of compensatory movement patterns, and the risk of progressive fibrosis, which justified long-term multidisciplinary follow-up and inclusion of targeted physiotherapy management.

3. Treatment

Following review of the available medical documentation, no clearly visible functional or structural improvement had been documented prior to the beginning of our physiotherapy intervention. Therefore, a targeted physiotherapy program was initiated and continued for five months, with sessions performed once weekly, each lasting approximately 60 minutes.

The intervention combined manual therapy, myofascial techniques, proprioceptive neuromuscular facilitation (PNF), dry needling, and cupping therapy. Cupping was applied both statically and dynamically during movement tasks. Dynamic cupping was primarily used in quadruped positions with active movement, especially in the lumbosacral and gluteal regions.

During the treatment process, it was observed that the patient responded best to low-intensity, non-aggressive therapeutic techniques. More intensive interventions occasionally provoked an adverse or protective tissue response. For this reason, subsequent sessions were based predominantly on gentler manual and fascial approaches, with gradual progression according to tolerance.

The main treatment goals were to improve mobility of the hip, knee, and lower back, reduce gait asymmetry, optimize movement patterns, and improve tissue quality. Particular emphasis was placed on myofascial release, which produced the most noticeable clinical changes. Improvements in tissue extensibility and softening of previously indurated areas were already visible during the first month of treatment and continued throughout the intervention period. Previously pronounced depressions and irregularities of the affected thigh became less visible over time.

The rehabilitation program also included strengthening exercises, particularly targeting the gluteus medius, gluteal muscle group, and *m. transversus abdominis*. In addition, the patient was instructed to perform regular self-myofascial release using a foam roller between sessions, which appeared to contribute positively to maintaining treatment effects. Overall, the intervention combined static soft tissue treatment with dynamic movement-based techniques, with a primary focus on fascial and myofascial structures, functional mobility, and neuromuscular control.

4. Outcomes

After five months of regular physiotherapy management, clinically significant functional and structural improvements were observed. The most pronounced progress was noted in the mobility of the left lower limb and the lumbopelvic region. Range of motion in the hip and knee increased noticeably, while compensatory movements of the pelvis and lumbar spine during previously restricted movements were reduced.

Improvement was also evident in gait, with reduced asymmetry of the movement pattern and enhanced overall functional movement control. The patient reported easier performance of daily activities, as well as an improved sensation during walking and physical activity.

Important changes were also observed in soft tissue quality. On palpation, the tissue of the affected left thigh was softer, more elastic, and more mobile compared with the initial condition. Previously marked areas of induration gradually softened, while visible depressions, irregularities, and thickening in the affected region became less pronounced. The lesion margins became less distinct and more mobile. Visual comparison of photographs taken before the start of treatment (**Figure 1**) and after five months (**Figure 2**) demonstrated noticeable improvement both on the anterior aspect of the thigh and in the gluteal and supragluteal regions.

Subjectively, the patient reported marked improvement in overall well-being, greater relaxation of the leg, and a sensation of increased mobility. No clinical deterioration or development of new limitations occurred during the treatment period.

Based on the observed changes, it may be concluded that individually tailored physiotherapy management focused on myofascial structures, improvement of mobility, and functional stability significantly contributed to the improvement of clinical status and functional abilities in this patient.



Figure 1. Clinical appearance of the affected left lower limb before physiotherapy intervention. The images demonstrate visible soft tissue asymmetry, contour irregularities, and tissue induration associated with juvenile linear scleroderma. On the anterior aspect of the thigh, multiple depressions and irregular soft tissue changes are visible. The posterior view demonstrates asymmetry and prominent contour changes in the gluteal and supragluteal region, corresponding to fibrosis and reduced soft tissue mobility identified during clinical examination.



Figure 2. Clinical appearance of the affected left lower limb after five months of physiotherapy intervention. The follow-up images demonstrate improved soft tissue symmetry and reduced contour irregularities of the left thigh and gluteal region. Compared with the initial presentation, the previously prominent depressions and tissue protrusions are less pronounced, and the overall appearance of the soft tissues is smoother and more symmetrical. Clinical examination also revealed improved tissue mobility and reduced induration following physiotherapy management.

5. Discussion

The presented case demonstrates the clinically significant potential of physiotherapy management in a patient with juvenile linear scleroderma of the left lower limb, who presented with long-standing mobility restrictions, soft tissue changes, and compensatory movement patterns. Despite previous specialist follow-up and systemic treatment, no clearly visible functional improvement had been observed prior to the initiation of our intervention. In contrast, after five months of individually tailored physiotherapy, noticeable improvements were seen in mobility, tissue quality, gait, and the patient's subjective well-being.

Linear scleroderma is a subtype of localized scleroderma in which deeper tissues, including the subcutaneous tissue, fascia, muscles, and bone, are frequently affected, potentially leading to contractures, deformities, and functional limitations (Takahashi et al., 2025). When the lower limb is involved, gait disturbances, reduced joint mobility, and the development of compensatory movement patterns are particularly common. This is consistent with our case, in which limitations of the hip and knee, together with lumbopelvic compensations, were present. Such changes further support the importance of early and continuous rehabilitation management in this patient population (Schoch et al., 2018).

Available literature indicates that physiotherapy is frequently included as a supportive component of multidisciplinary management in patients with morphea, primarily with the aim of preserving mobility, preventing contractures, and improving functional capacity (Fett & Werth, 2011; Kreuter et al., 2016). However, evidence regarding its effectiveness remains limited due to the lack of high-quality randomized studies and standardized treatment protocols. Most current recommendations are based on clinical experience, small case series, and expert consensus (Zwischenberger & Jacobe, 2011). Therefore, the present case adds further practical evidence regarding the potential benefits of physiotherapy management in patients with linear scleroderma.

In our case, the greatest therapeutic effect appeared to result from emphasis on myofascial release and gentler manual techniques. Clinically, a reduction in tissue induration, improved elasticity and mobility of soft tissues, and decreased visible irregularities of the skin and subcutaneous tissue were observed. Such a response may be explained by the effects of manual techniques on fascial gliding, local circulation, reduction of muscle tension, and improvement of proprioceptive perception. Although the precise mechanisms in patients with scleroderma have not yet been sufficiently investigated, the findings suggest that fascia-oriented approaches may be clinically relevant, particularly in patients with pronounced soft tissue fibrosis.

An important finding of this case was that the patient did not tolerate more intensive techniques well, as these occasionally triggered an adverse or protective tissue response. In contrast, more gradual and less aggressive methods were more effective and better tolerated. This is a clinically relevant message for physiotherapists, as excessive mechanical aggressiveness is probably not appropriate when treating fibrotic and chronically altered tissues. Instead, gradual modulation of load combined with continuous monitoring of the patient's response appears to be preferable. Individualization of therapy is therefore essential.

In addition to passive techniques, the active component of rehabilitation likely also played an important role. Exercises aimed at strengthening the gluteal musculature, the transversus abdominis muscle, and improving pelvic control most likely contributed to reduced gait asymmetry and better movement control. In patients with long-standing compensatory patterns, treatment of soft tissues alone is often insufficient unless accompanied by movement re-education and stabilization training. In this case, the combination of manual techniques and therapeutic exercise proved to be a rational and functionally effective approach.

It is important to emphasize that this is a single case report; therefore, the findings cannot be directly generalized to the wider patient population. In addition, objective outcome measures (e.g., goniometry, LoSCAT, validated functional questionnaires, or quality-of-life instruments) were not systematically applied. Consequently, the assessment of progress was based mainly on clinical observation, palpation, functional assessment, and

the patient's subjective report. Nevertheless, the observed changes were sufficiently pronounced and multidimensional to provide important clinical value.

Future prospective studies with larger patient samples, standardized outcome measures, and comparisons of different physiotherapy approaches are needed. It would be particularly valuable to investigate the effects of myofascial techniques, manual therapy, and targeted therapeutic exercise in patients with linear scleroderma affecting the lower limbs. Our case suggests that physiotherapy may represent an important and safe component of comprehensive management and may significantly contribute to improving patients' functional status (Fett & Werth, 2011; Kreuter et al., 2016).

6. Conclusions

The presented case shows that individually tailored physiotherapy management can significantly contribute to improving functional status in patients with juvenile linear scleroderma of the lower limb. After five months of regular treatment, improvements were observed in range of motion, reduction of compensatory movement patterns, better gait symmetry, and improved soft tissue quality. The patient also reported better subjective well-being and easier performance of daily and sports activities. In the presented case, a combination of myofascial release, gentle manual techniques, targeted therapeutic exercise, and individually adjusted progression of loading proved to be particularly beneficial. The findings suggest that in patients with soft tissue fibrosis and long-standing movement limitations, it is important to select gradual, well-tolerated therapeutic approaches and combine them with active exercise aimed at improving stability and functional movement. Although this is a single case report, the findings support the inclusion of physiotherapy as an important component of multidisciplinary management in patients with localized or linear scleroderma. Further studies involving larger patient samples and standardized outcome measures will be needed to more precisely define the most effective physiotherapy approaches.

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Conflicts of Interest: The authors declare no conflict of interest.

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