REHABILITATION IN RHEUMATIC DISEASES

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Abstract
Rheumatic and musculoskeletal diseases (RMDs) have far-reaching impacts on individuals and society, marked by chronic pain and functional limitations. While early diagnosis and treatments enhance RMD prognosis, comprehensive management demands multidisciplinary rehabilitation. Goals include pain management, joint function preservation, mobility sustenance, and active participation facilitation. Interdisciplinary teams craft patient-specific rehabilitation plans. Rheumatologists must guide discussions on tailored rehabilitation strategies for RMDs, particularly osteoarthritis, rheumatoid arthritis, and axial spondylarthritis, aligning with international guidelines. This review discusses evolving rehabilitation trends in rheumatic diseases, exploring challenges and opportunities for improved patient outcomes and quality of life.

Keywords: rheumatic; musculoskeletal; arthritis; disability; rehabilitation.


Key Messages for Research and Practice

- Chronic Rheumatic and musculoskeletal diseases (RMDs) profoundly affect individuals and society, emphasizing chronicity, pain, limited function, and potential disability.
- Musculoskeletal conditions within RMDs contribute significantly to global disability, warranting effective management strategies.
- Multidisciplinary rehabilitation empowers patients, ensuring pain management, joint preservation, function, and active participation.
- Advocating for insurance coverage, reinforcing exercise’s benefits through robust studies, and integrating technology, like smartphone apps, show promise for RMD rehabilitation enhancement.
Introduction

Rheumatic and musculoskeletal diseases (RMDs) incorporate many chronic conditions that profoundly impact individuals and society. These diseases frequently cause pain, limited function, and eventual disability and could potentially lead to a reduction in the life expectancy of the affected patients [1]. According to the World Health Organization (WHO), nearly two billion people globally experience musculoskeletal conditions, which places them as the primary contributor to global disability [2].

The prevalence of these conditions has surged on a global scale, posing a substantial burden with data demonstrated a staggering 128.9% rise in disability-adjusted life years attributed to RMD (excluding back pain) across all age groups [3]. Timely diagnosis and increased utilization of efficient pharmacological interventions have enhanced the prognosis and quality of life for individuals with RMDs [4]. Maintaining overall health linked to enduring a chronic illness also hinges on effectively dealing with these conditions through multidisciplinary rehabilitation [5-7]. The rehabilitation objectives encompass pain management, joint preservation, sustaining function and mobility, and enabling active daily participation [8].

Physicians, psychologists, therapists, and other healthcare providers collaborate creatively as a multidisciplinary team to establish rehabilitation goals for individuals with RMDs [8,9]. Multidisciplinary rehabilitation empowers patients to independently regulate healthy behaviors, effectively handle symptoms and treatment, and reach and uphold an optimal level of functioning across both physical and psychosocial dimensions [10-12].

Rheumatologists frequently need to discuss rehabilitation requirements with patients who suffer from RMD, such as osteoarthritis (OA), rheumatoid arthritis (RA), and axial spondyloarthritis (axSpA). This review aims to shed light on the scope of rehabilitation in these rheumatic diseases, in line with current international guidelines and acceptable clinical practice.

Search strategy

We followed the comprehensive search methodology proposed for narrative reviews [13]. Literature searches were performed through the Medline/PubMed, Scopus, and Google Scholar, employing keywords such as «rheumatic,» «rehabilitation,» «osteoarthritis,» «rheumatoid,» and «spondyloarthritis.» We specifically targeted English-language articles published within the past 10 years, and our search scope was broadened through a comprehensive review of the references cited in each article. Case reports, case series, protocols, and conference abstracts were excluded.

Rehabilitation of patients with osteoarthritis

Osteoarthritis (OA) stands as the prevailing type of arthritis, impacting primarily the knees, hips, and hands, often leading to pain, stiffness, swelling, and reduced joint function [9,14]. The condition encompasses joint-wide problems like cartilage breakdown, bone remodeling, osteophyte formation, and synovial inflammation [5]. Osteoarthritis impacts 15% of those above 30 [15]. It is estimated that 80% of those affected with OA faced movement limitations and 25% experienced restrictions in major daily activities. These effects are even more pronounced for knee osteoarthritis, with 14% needing help for routine tasks and 11% for personal care [16]. Furthermore, among individuals with OA, high prevalence rates of anxiety and/or depression were observed [17].

Knowledge about the disease’s characteristics, progression, self-management strategies, and treatment alternatives is fundamental for every patient [9]. OA management might encompass pharmacological methods, including topical, oral, and intra-articular medications, and non-pharmacological measures, like behavioral, psychological, and physical approaches [5].

Physical and mind-body rehabilitation

Exercise programs aim to build muscle strength, improve aerobic capacity, increase and maintain range of motion, maintain bone density, and improve overall function and well-being. The EULAR recommends engaging in aerobic and strengthening exercises [18]. For all patients with OA, exercise is highly advised, with more substantial evidence affirming its efficacy in addressing knee and hip OA when contrasted with hand OA [5,19].

Various exercises for treating OA encompass activities such as aerobic walking (indoors or on a treadmill), stationary cycling, strength training (utilizing isokinetic machines or resistance exercises with equipment), isometric exercises, and joint-friendly aquatic workouts [5].
Effective exercise programs, typically supervised by physical therapists or in group classes, tend to outperform independent home workouts. To enhance mobility, independence, and safety, assistive devices such as canes, tibiofemoral knee braces, and hand orthoses are often advised for patients with osteoarthritis [5,20].

Additionally, Tai chi is advised for individuals with knee and/or hip OA [5,19]. Yoga is recognized for improving physical aspects like balance, strength, flexibility, and mental well-being, including mood and stress management [21]. The ACR suggests trying yoga for individuals with knee OA [5], and the OARSI also extended this recommendation to hip OA [19]. Acupuncture is a beneficial treatment modality for knee osteoarthritis [22,23] and is suggested by the 2019 ACR recommendations for patients suffering from knee, hip, and/or hand OA [5]. Balneotherapy was found to improve pain and quality of life in OA patients [24].

Psychosocial rehabilitation

Whether employed in isolation or integrated with complementary methods, exercise therapy significantly enhances the quality of life and psychosocial aspects for individuals with knee OA [25]. Cognitive behavioral therapy (CBT) was shown to improve pain, quality of life, mood, fatigue, and function [26,27] and is tentatively recommended for all OA patients [5,19].

Rehabilitation of patients with rheumatoid arthritis

Rheumatoid arthritis is a chronic painful disease with an incidence of 0.5% to 1% [28]. RA places a significant burden on patients due to persistent synovial inflammation, leading to joint damage, sarcopenia, muscle weakness, and decreased physical activity, markedly diminishing patients’ quality of life [29,30]. RA patients commonly need personal care assistance and face increased limitations in daily activities compared to those without the condition, and a notable proportion experienced work disability a decade post-diagnosis [16]. Patients with RA showed 15% higher rates of functional impairment than non-RA individuals [31].

Commencing DMARD therapy at an early stage and adhering to a goal-oriented approach aimed at achieving remission or low disease status is advisable to prevent both skeletal and extra-skeletal complications related to the disease [32,33]. While the risk of functional impairment is related to increased disease activity and delayed diagnosis, which has seen improvement in the new millennium, disability stemming from RA remains unchanged [34,35].

Vocational rehabilitation assessments, guided by occupational therapy, evaluating educational, physical, work, social, and psychological aspects, facilitate RA patients’ workforce reentry, reducing social welfare dependence and societal costs [36].

Physical and mind-body rehabilitation

Current guidelines support incorporating aerobic, resistance, aquatic, and mind-body exercises into the regimen for RA patients. The components of an exercise plan should be customized to each individual’s current stage in the progression of their condition [18,37]. The guidelines advise individuals to engage in comprehensive occupational therapy (OT) and comprehensive physical therapy (PT), which should be offered to the patients early in their disease course, particularly hand mobility and strength exercises to improve hand function [37]. Using bracing and orthoses, such as wrist and finger splints, knee or foot orthoses, compression gloves, and taping, which can aid in correcting joint alignment and enhancing joint protection, is conditionally recommended for individuals with RA per the ACR guidelines [37].

The SARAH study, a multicenter trial spanning 17 UK National Health Service sites and involving 490 adults with RA suffering from hand pain and dysfunction, assessed the impact of a customized hand exercise program [38]. Patients either received usual care or usual care in addition to an exercise program conducted by occupational therapists or physiotherapists. After 12 months, using the Michigan Hand Outcomes Questionnaire, the exercise group improved hand function significantly better than standard care. Physical therapy instructs individuals on joint protection strategies to preserve functionality through modifying work skills and movement patterns in damaged joints [37,39]. Acupuncture, yoga, and Tai Chi are conditionally recommended for RA patients by the ACR guidelines [37].

Psychosocial rehabilitation

Individuals with RA are susceptible to anxiety and depression disorders, which are connected to elevated disease activity and consequent declines in quality of life [40,41]. A study revealed that using an internet-based cognitive-behavioral self-care program and regular
telephone contact improved quality of life [42]. Cognitive behavioral therapy is recommended by the ACR guidelines to improve depression, anxiety, fatigue, and sleep [37], although the data is limited. Physical activity and psychosocial approaches were demonstrated to offer some benefits in alleviating fatigue in adult patients with RA based on a Cochrane review [43].

Rehabilitation of patients with axial spondyloarthritis

The primary site of involvement of axial spondyloarthritis (axSpA) is on the spinal column [44], and predominantly affects males, featuring distinctive inflammatory back pain primarily concentrated in the lower back and sacroiliac region, often manifesting before the age of 45 [45]. axSpA can be categorized into non-radiographic (nr-axSpA) or radiographic (r-axSpA) forms, differentiated by MRI’s ability to detect specific inflammatory lesions that conventional radiology cannot, with r-axSpA resembling genetically linked classical ankylosing spondylitis (AS) [46]. The disease can result in progressive spinal fusion that causes loss of spinal mobility and symptoms of pain, stiffness, and fatigue—often influenced by sleep quality—that are key factors in the disease’s impact, limiting physical functioning for daily activities such as dressing, walking, bathing, and eating [47].

Given its prevalence among individuals in their working years, the condition inherently underscores the significance of work capacity and productivity as crucial outcomes of interest. Increased axSpA disease activity amplifies productivity loss and leads to various comorbidities, notably cardiovascular issues, independently linked to decreased work participation and diminished quality of life, intensifying patient burden and the possibility of unemployment risks [48,49].

The International Map of Axial Spondyloarthritis (IMAS), involving 2846 self-reported patients from 21 countries, found that around two-thirds of employed patients faced axial SpA-related work issues connected to disease activity and psychological distress [50].

When treating individuals with axSpA, the primary objective is to enhance their overall well-being and long-term life quality. This objective encompasses various aspects, such as managing symptoms and inflammation, halting the advancement of structural damage, and upholding or restoring functional and psychosocial abilities [51].

A major challenge to the management of axSpA is the delay in diagnosis. Patients often experience a significant delay spanning several years before receiving a conclusive diagnosis following the onset of chronic back pain [44]. Depression, impacting approximately 15% of patients, forms a common comorbidity in axSpA, with the depression-anxiety cluster notably characterized by higher disease activity scores and lower quality of life measurements [52].

Physical and mind-body rehabilitation

The management of axSpA patients involves both pharmacological and non-pharmacological approaches [51]. Exercise plays a fundamental role in axSpA management, positively affecting disease outcomes regardless of pharmaceutical intervention [53]. Supervised physiotherapy involving aerobic workouts, strengthening exercises, and joint flexibility activities, whether on land or in water, has demonstrated superior efficacy over unsupervised home exercises [54,55]. Based on two separate systematic meta-analyses, exercise was shown to be associated with at least moderate reductions in disease activity in axSpA [18,54], and the most recent international societies guidelines recommend regular exercise and physiotherapy for axSpA patients [51]. Positive impacts on cardiovascular risk factors and improvements in disease activity have been observed with implementing high-intensity exercise in these patients [56].

Psychosocial rehabilitation

Implementing behavioral therapy involving tailored consultations to motivate and support physical activity participation in the management of axSpA led to enhancement in spinal mobility life overall well-being [57].

Innovations in rehabilitation

Self-management interventions aim to enhance the health-related quality of life, lower the usage of healthcare services, and bolster individuals’ perceived self-efficacy [58]. Utilizing wearable activity trackers (WATs) for monitoring personal physical activities is a prevalent method to boost exercise levels [59]. A systematic review assessing the impact of WATs in RMDs found that their usage in RMD cases was linked to substantial short-term adherence and augmentation in both step count and duration of physical activity [60].

A systematic review, including a meta-analysis of technology-assisted self-care approaches employing telephone, audio and video, internet, or mobile applications for individuals with knee
and hip osteoarthritis, indicates potential pain and physical function improvement, with little impact on disability or well-being [61].

The transformative effects of the COVID-19 pandemic have brought about substantial changes in healthcare provision, thereby influencing the rehabilitation of patients with RMDs. Notably, the pandemic accelerated the adoption of online virtual physical therapy, education, and tele rheumatology, offering a promising avenue for RMD rehabilitation and leveraging established evidence within rheumatology [62].

Challenges and barriers in rehabilitation for RMDs

The expanding group of people managing long-term health conditions and disabilities and limited access to providers have complicated effective rehabilitation efforts [63]. Challenges such as service scarcity, economic constraints, and a lack of familiarity among rheumatologists with non-pharmacological treatments, combined with insufficient recognition of allied health professionals’ contributions, hinder global adoption of RMD rehabilitation [8]. Delays in occupational and physical therapy referrals can impact patients’ ability to self-manage interventions like exercise and joint protection for inflammatory arthritis. Racial and socioeconomic disparities in disability among arthritis patients emphasize the need for equitable rehabilitation outcomes [64]. While exercise can help with pain and function, consideration of preferences and access barriers is crucial, as impractical recommendations can limit benefits [5]. Many recommended interventions lack consistent insurance coverage, burdening individuals with RMDs financially [37]. A shortage of skilled occupational and physical therapists specializing in RMD treatment and limited access to their services pose a significant challenge in RMD rehabilitation. EULAR’s ‘Research Roadmap’ - RheumaMap - highlights the essential need to understand the influence of activity exercise and changes in daily habits and on axSpA progression, centering on identifying response markers and evaluating long-term efficacy across different intensities [65].

While international recommendations support the incorporation of exercise to manage RMDs, especially OA and axSpA, effectively, there is a lack of precise guidance regarding the necessary quantity to achieve a beneficial impact [56].

Conclusion and future directions

Adopting a multidisciplinary rehabilitation approach empowers patients to cultivate autonomous healthy behaviors, proficiently manage symptoms and treatments, and attain sustained physical, psychological, and social well-being. Policymakers should actively champion insurance coverage to support and endorse an integrated approach to RMDS management, recognizing its potential to improve patient outcomes and reduce the burden of these conditions on individuals and society. While the existing literature underscores exercise’s positive impact on RMDs, additional high-quality studies are imperative to bolster these findings and establish a robust evidence base. Furthermore, as technology continues to reshape healthcare, the rapid global integration of technologies, such as smartphone applications, offers a promising avenue for the future of RMD rehabilitation These applications provide patients with a user-friendly means to independently oversee their health conditions, fostering increased engagement and adherence to treatments.

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CONFLICT OF INTEREST

None

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