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From Stiffness to Strength: The Role of Physical Activity in Managing Rheumatoid Arthritis

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Abstract

Rheumatoid arthritis (RA) is a chronic autoimmune disease characterized by joint inflammation, pain, and potential disability. While pharmacological treatments are central to managing RA, physical activity plays a crucial role in improving patient outcomes. This article explores the influence of physical activity on RA, detailing its benefits, challenges, and best practices. Physical activity offers numerous benefits for RA patients, including reduced pain, improved joint function, enhanced physical mobility, and better mental health. Regular exercise also mitigates the risk of cardiovascular disease, improves bone density, and contributes to overall quality of life. Suitable forms of physical activity for RA patients include low-impact aerobic exercises, strength training, flexibility exercises, balance training, and mind-body practices like yoga and Tai Chi. Despite these benefits, RA patients face challenges in engaging in physical activity, such as pain, fatigue, and psychological barriers. Properly tailored exercise programs, guided by healthcare professionals, can help overcome these challenges, ensuring that patients can safely incorporate physical activity into their management plans. This article highlights the importance of a multidisciplinary approach, integrating physical activity with conventional RA treatments, to optimize patient outcomes and enhance their quality of life.

Keywords: rheumatoid arthritis, physical activity, aerobic exercise, strength training, psychological barriers, managing rheumatoid arthritis

Introduction

Rheumatoid Arthritis (RA) is a chronic autoimmune disease characterized by joint inflammation, pain, swelling, and stiffness, leading to joint damage and deformity [1]. It affects approximately 1-2% of the global population, making it the most common form of inflammatory arthritis [2]. RA is a systemic autoimmune inflammatory disease that not only impacts the joints but can also lead to bone erosion and joint space narrowing [3]. The disease's autoimmune nature causes chronic inflammation in the joints and can result in physical disability and reduced quality of life for patients [4]. RA is associated with various comorbidities, including an increased risk of cardiovascular disease [5]. Patients with RA are at a higher risk of developing cardiovascular conditions due to the systemic inflammation associated with the disease [6]. Additionally, individuals with RA may experience a higher prevalence of depression, which can further impact their overall well-being and disease outcomes [7]. Furthermore, rheumatoid arthritis patients often suffer from severe pain, which can significantly affect their quality of life [8]. Physical activity plays a crucial role in managing RA by helping to reduce pain, improve joint function, and enhance overall well-being [9]. Exercise interventions, such as aerobic walking programs and strengthening exercises, have been shown to be effective in alleviating symptoms and improving physical function in patients with RA [10]. Regular physical activity can also help reduce chronic fatigue, a common issue among individuals with RA, by providing biological, physical, and psychosocial benefits [11]. Despite the benefits of physical activity, patients with RA may face barriers to engaging in regular exercise, such as joint pain, inflammation, and mobility limitation [12]. However, interventions combining manual therapy techniques with exercise have shown promise in improving symptoms and increasing physical activity levels in individuals with chronic RA [13]. Additionally, tailored hand exercise programs have been

developed to specifically target hand problems in RA patients, aiming to enhance joint function and reduce disability [14]. In conclusion, rheumatoid arthritis is a complex autoimmune disease that significantly impacts patients' lives, leading to joint damage, pain, and reduced quality of life. Exploring the role of physical activity in managing RA is crucial for improving symptoms, enhancing joint function, and promoting overall well-being in individuals with this condition. By understanding the benefits of exercise interventions and addressing potential barriers, healthcare providers can better support patients in effectively managing their rheumatoid arthritis.

Purpose

The present article aims to review and analyze the existing literature on the relationship between rheumatoid arthritis and physical activity.

Materials and methods

The review was based on the analysis of materials collected in the „Pubmed”, Google Scholar, ResearchGate databases, books and other scientific articles. The search was performed using the keywords: rheumatoid arthritis, physical activity, resistance training, aerobic exercise

The Role and Types of Physical Activity in Rheumatoid Arthritis

Physical activity is a crucial component in the management of chronic diseases, with moderate-to-vigorous exercise being fundamental for both prevention and treatment [9]. In the context of rheumatoid arthritis, physical activity is particularly significant as it offers a range of benefits that can positively impact patients' overall well-being. Studies have demonstrated that physical activity, including aerobic exercises like walking, can effectively reduce chronic fatigue in RA patients and is recommended as an integral part of managing rheumatic diseases due to its accessibility, cost-effectiveness, and acceptability [15, 16]. Moreover, exercise therapy has been found to increase muscle mass in RA patients, highlighting the importance of physical activity in maintaining muscle health [17]. Aerobic, isometric, and isotonic exercises have been identified as suitable interventions for RA patients, impacting not only their physical health but also significantly influencing psychosocial and social aspects [8]. These exercises help maintain muscle strength, improve cardiovascular health, and enhance overall well-being in RA patients. Furthermore, studies have shown that a

combination of aerobic exercise and routine care is more effective and cost-effective for RA patients compared to routine care alone [18].

Resistance training can be tailored to individual capabilities and needs, focusing on specific muscle groups to enhance overall functional capacity and joint stability. Furthermore, combining a physically active lifestyle with aerobic exercise and resistance training has been shown to have positive effects on the quality of life of RA patients [19].

This underscores the importance of incorporating exercise into the overall management plan for individuals with RA. Despite the numerous benefits of exercise for RA patients, there are potential challenges and risks associated with physical activity in this population. Patients with RA may face barriers to engaging in regular physical activity, such as pain, fatigue, and joint stiffness [6]. It is crucial to address these barriers and provide appropriate support to help individuals with RA overcome challenges related to exercise participation. Additionally, while exercise is generally considered safe for RA patients, it is essential to tailor exercise programs to individual needs and capabilities to prevent exacerbation of symptoms or joint damage [13]. Moreover, the type of exercise chosen must consider the specific needs and limitations of RA patients to ensure safety and effectiveness. While higher-intensity physical activities may not be suitable for all RA patients, especially those with disabilities or active disease, moderate-intensity exercises like walking, swimming, or cycling can be beneficial [20]. These activities can help improve joint flexibility, reduce stiffness, and enhance mobility without putting excessive strain on the joints. In the management of RA, it is important to consider a holistic approach to care, which may include a combination of interventions such as exercise, medication, and lifestyle modifications. Studies have highlighted the effectiveness of combining manual therapy with exercise, showing improvements in symptoms and quality of life for chronic RA patients [21]. Furthermore, interventions like hydrotherapy have been found to be effective in reducing pain and improving the quality of life in RA patients, emphasizing the importance of exploring diverse approaches to managing the condition [22]. It is essential to consider the preferences and abilities of each RA patient when recommending physical activities. Some individuals may benefit from activities like yoga or tai chi, which can help improve flexibility, balance, and mental well-being [23]. These low-impact exercises can be particularly suitable for individuals with RA who may have joint pain or limited mobility. Moreover, aquatic exercises, such as swimming or water aerobics, are often recommended for RA patients as the buoyancy of water reduces the impact on joints while providing a challenging workout [24]. In conclusion, physical activity plays a vital role in the

management of chronic diseases like rheumatoid arthritis. While there are challenges and risks associated with exercise in RA, tailored exercise programs, addressing barriers, and ensuring safety are essential in maximizing the benefits of physical activity for individuals with RA. By integrating exercise into comprehensive care plans and considering individual needs, healthcare providers can help RA patients optimize their health and quality of life.

Benefits of Physical Activity for RA Patients

Physical activity plays a crucial role in the management of RA by offering various benefits to patients. Research has shown that physical activity is a safe and effective intervention that can help improve symptoms and systemic manifestations of RA [25]. Exercise programs, including aerobic and dynamic strengthening exercises, have been highlighted as safe and beneficial for individuals with RA, leading to improvements in bone mineral density and disease activity [26]. Moreover, engaging in physical activity can be seen as a resource for patients with RA to resist disability, maintain health, and find meaning in life [27]. Studies have demonstrated that exercise, such as hand-strengthening programs, can enhance strength and hand function in RA patients, contributing to their overall rehabilitation [28]. Additionally, exercise has been found to modulate the cellular immune system in RA patients with low disease activity, indicating its positive impact on immune function [29]. Furthermore, strengthening exercises have been shown to benefit RA patients in various ways, emphasizing the importance of exercise for this population [4]. Exercise therapy has also been found to effectively increase muscle mass in RA patients, highlighting its role in managing conditions like sarcopenia in this population [17]. Meta-analyses have further supported the effectiveness and safety of aerobic exercise for RA patients, emphasizing its role in improving outcomes for individuals with this condition [13]. Moreover, long-term, high-intensity exercise programs have been shown to be cost-effective and beneficial compared to usual care for RA patients [30]. In conclusion, physical activity offers a multitude of benefits for individuals with rheumatoid arthritis, ranging from improving symptoms and disease activity to enhancing muscle mass and overall quality of life. Incorporating exercise programs tailored to the needs of RA patients can play a significant role in their rehabilitation and long-term management.

Future Directions and Research in Physical Activity and RA

Future research in physical activity and rheumatoid arthritis shows promise in improving the management and outcomes of individuals with this condition. Despite the known benefits of

physical activity for RA patients, there are areas that require further exploration. Additionally, exploring the relationship between self-efficacy and physical activity in RA patients can offer insights into how psychological factors influence engagement in exercise routines. Understanding strategies to enhance self-efficacy may help promote sustained physical activity among individuals with RA [31]. Furthermore, investigating the impact of physical activity on specific aspects of RA, such as grip strength in elderly patients, can offer valuable insights into the role of exercise in maintaining functional abilities and independence in this population [32]. In conclusion, future research directions in physical activity and rheumatoid arthritis should address gaps in knowledge regarding the effects of the COVID-19 pandemic, psychological factors influencing exercise behavior, combined treatment approaches, and the impact of physical activity on specific health parameters in RA patients. Advancing understanding in these areas can optimize the management of RA and enhance the well-being of individuals living with this chronic condition.

Discussion

The influence of physical activity on patients with RA is a critical area of study, given the complex interplay between exercise, disease activity, and overall quality of life. The findings from the current research underscore the multifaceted benefits of regular physical activity for individuals with RA, while also highlighting the nuanced considerations necessary for optimizing exercise regimens in this population [33]. The positive impact of physical activity on patients with RA is well-documented and was reaffirmed by this study. Regular exercise has been shown to reduce inflammation, enhance joint mobility, and improve muscle strength, which collectively contribute to better functional outcomes [34, 35]. Importantly, physical activity also plays a significant role in managing comorbid conditions frequently associated with RA, such as cardiovascular disease, obesity, and osteoporosis [36, 37]. This study supports the notion that exercise, when appropriately tailored, can help mitigate the severity of RA symptoms, reduce the risk of secondary health issues, and improve overall physical and mental well-being. However, the discussion around physical activity in RA patients must also acknowledge the challenges. RA is characterized by periods of flare-ups and remission, and the fluctuating nature of the disease can make it difficult to maintain a consistent exercise routine. The findings suggest that exercise programs for RA patients should be individualized, taking into account the current disease activity, the patient's physical capabilities, and any comorbid conditions [38]. Low-impact activities such as swimming, cycling, and yoga are

often recommended, as they minimize joint stress while still providing cardiovascular and musculoskeletal benefits [39]. Moreover, the intensity and duration of exercise should be carefully monitored. Therefore, collaboration between patients, rheumatologists, and physiotherapists is essential to develop safe and effective exercise plans that can be adjusted in response to changes in disease activity. While this study adds valuable insights into the benefits of physical activity for RA patients, there are some limitations to consider. The variability in exercise types, durations, and intensities across different studies makes it difficult to establish standardized guidelines. Additionally, long-term studies are needed to fully understand the impact of sustained physical activity on disease progression and patient outcomes. Future research should also explore the role of emerging technologies, such as wearable devices and telehealth, in promoting and monitoring physical activity in this population.

Conclusion

In conclusion, physical activity is a key component in the management of rheumatoid arthritis, offering numerous physical, psychological, and social benefits. However, the approach to exercise must be personalized, taking into account the unique challenges posed by the disease. Continued research and innovation in exercise prescription will be essential in optimizing care for RA patients, ultimately improving their quality of life and long-term health outcomes.

Author's contribution

Conceptualization, MK; methodology, MR, JNŁ, KR; software, MK, OB, JNŁ, EJJ, MN; check, AP, MN; formal analysis OB, KR, MR; investigation, JNŁ, MN; resources, AP, KR; data curation, MR, AP; writing – rough preparation MK, OB; writing-review and editing, JNŁ, EJJ.; visualization MN; supervision, KR; project administration, JNŁ, OB;

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