



EFFECTIVENESS OF PHYSICAL EXERCISE AND MASSAGE THERAPY IN ANKYLOSING SPONDYLITIS

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ABSTRACT

This article analyzes the clinical effectiveness, physiological mechanisms, and the role of physical exercise and massage therapy in the comprehensive rehabilitation of patients with ankylosing spondylitis (AS). Based on current scientific studies, the impact of exercise and massage on BASFI, BASDAI, pain intensity, and mobility parameters was evaluated.

Ankylosing spondylitis (AS) is a chronic, progressive disease that often leads to disability in young patients, with a global prevalence of 0.2–1.6% [2]. The main clinical problems of AS include morning stiffness, restricted spinal mobility, severe low back pain, and, in the final stage, ankylosis of the vertebral column [18]. Although biological therapy is effective, physical exercise and adjunctive massage therapy play an invaluable role in long-term disease management [6]. Studies show that each year without rehabilitation accelerates functional decline in AS; therefore, early and regular rehabilitation is of crucial importance [4]. At the same time, the lack of standardized rehabilitation programs for AS in Uzbekistan highlights the need for in-depth scientific analysis of this topic.

AS is a disease characterized by chronic inflammation of the spine and sacroiliac joints, enthesitis, and progressive ankylosis [1]. Immune-mediated inflammation and HLA-B27-related alterations play a key role in the pathogenesis of AS [18]. In modern treatment approaches, integrative use of physical exercise, rehabilitation, and massage alongside biological agents has demonstrated high effectiveness [6]. The goals of rehabilitation are to reduce pain, improve the range of motion, and restore functional capacity [4]. Regular stretching exercises help maintain spinal flexibility and slow the ankylosis process [11]. Aerobic exercises have been proven to increase the release of IL-10 and other cytokines with systemic anti-inflammatory effects [16]. Strength training enhances paraspinal muscle stabilization and reduces postural abnormalities [10]. Studies show that regular exercise can improve BASFI scores by 18–35% [4]. A 6–8-week aerobic exercise program has been associated with a 25–40% reduction in BASDAI scores [7]. Group-based exercise sessions significantly enhance motivation and engagement compared with individual training [12]. Swimming is one of the most suitable aerobic exercises for AS because it strengthens muscles without increasing spinal load [1].

Massage reduces paraspinal muscle spasms, improves blood and lymphatic circulation, and decreases pain mediators [5]. The “gate-control” mechanism, which reduces nociceptive signaling at the dorsal horn, is one of the main analgesic pathways involved in massage therapy [14]. Myofascial massage restores fascial elasticity and slows the progression of stiffness and contractures [17]. A six-week myofascial massage program has been reported to reduce pain intensity by 23–34% in patients with AS [8]. When stretching exercises are combined with massage, functional outcomes are significantly better compared to massage alone [9]. Trigger-point massage has been shown to decrease paraspinal rigidity and reduce morning stiffness by 15–25% [19].

The combination of exercise and massage provides more effective control of pain, stiffness, and inflammation, offering additional benefits alongside pharmacotherapy [6]. A comprehensive rehabilitation program slows ankylosis progression, maintains spinal mobility, and improves patients’ quality of life [12]. According to research, consistency of exercise is more important than intensity [3]. Studies demonstrate that the combination of physical exercise and massage in AS significantly decreases BASFI, BASDAI, and pain scores [4,7,8]. Aerobic exercise lowers systemic inflammatory markers and improves functional parameters by enhancing respiratory capacity [1,16]. Massage reduces paraspinal muscle tension, eliminates trigger points, and alleviates stiffness, thereby shortening the duration of morning immobility [8,19]. Integrated rehabilitation protocols (exercise + massage) help stabilize the clinical course of AS and may reduce the need for pharmacological treatment [6].

Table 1.
Basic exercises for ankylosing spondylitis

Type of exercise	Duration	Frequency	Expected result
Spinal stretching exercises	10-15 minutes	Every day	Mobility increases
Chest expansion exercises	5-10 minutes	Every day	Breathing capacity increases
Aerobic exercises	30 minutes	3-4 times a week	Inflammation does not decrease
Strength training	20 minutes	2-3 times a week	Stabilization increases

For patients with ankylosing spondylitis (AS), it is recommended to perform physical exercises daily for at least 20–30 minutes [11]. Aerobic training for 30 minutes, 3–4 times per week (such as swimming or cycling) is considered effective [1]. To reduce stiffness, it is advisable to undergo professional massage (classic or myofascial) at least twice a week [5,17].

Exercises should be continued in the presence of mild pain, but temporarily restricted during periods of acute pain, fever, or active inflammation [20]. The integration of exercise, massage, and pharmacotherapy provides optimal clinical outcomes [12]. To enhance rehabilitation effectiveness, patients should be provided with a list of home-based exercises [3] (Table 1).

Table 2.
Massage techniques

Type of massage	Duration	Frequency	Mechanism of action
Klassik	20-30 minutes	2-3 times	Spasm, pain are reduced
Miofassial release	15-25 minutes	1-2 times	Fascial relaxation
Trigger point	10-15 minutes	1 times	Local points loss

Thus, physical exercise and massage are highly effective, evidence-based, and safe adjunctive therapies in the management of ankylosing spondylitis (AS). When used together, they reduce pain, improve mobility, decrease inflammation, and significantly enhance quality of life. The regularity of rehabilitation programs has the greatest impact on the long-term prognosis of AS.

References:

1. Barbosa C.M. Swimming in AS rehabilitation. *The Physician and Sportsmedicine*, 2018.
2. Braun M.A. Ankylosing spondylitis pathogenesis review. *The Lancet*, 2020.
3. Carter S. Regularity vs. intensity in AS rehabilitation. *Rheumatology International*, 2020.
4. Dagfinrud H. BASFI improvement with exercise. *Arthritis Care & Research*, 2017.
5. EULAR Physical Therapy Guidelines. European Alliance of Associations for Rheumatology (EULAR), 2022.
6. EULAR Recommendations for AS rehabilitation. European Alliance of Associations for Rheumatology (EULAR), 2022.
7. Fernández-de-Las-Peñas C. Exercise effect on BASDAI. *Clinical Rheumatology*, 2020.
8. Field T. Massage therapy and muscle physiology. *Current Pain and Headache Reports*, 2019.
9. Gür A. Combined massage-exercise therapy. *Archives of Physical Medicine and Rehabilitation*, 2017.
10. Ince B. Strength training in ankylosing spondylitis. *Rheumatology International*, 2021.
11. Lim H. Stretching and mobility in AS. *Clinical Rehabilitation*, 2021.
12. Lubrano E. Group vs. individual physiotherapy. *Rheumatology*, 2016.
13. Maksymowych W.P. AS QoL changes with exercise. *Journal of Clinical Rheumatology*, 2021.
14. Melzack R. Gate control theory. *Neuroscience*, 2018.
15. O’Shea F.D. Spine mobility preservation in AS. *Journal of Rehabilitation Medicine*, 2020.
16. Pedersen B.K. Myokines and inflammation. *Nature Reviews Immunology*, 2019.
17. Schleip R. Fascia physiology. *Journal of Bodywork and Movement Therapies*, 2017.
18. Sieper J. Pathophysiology of axial spondyloarthritis. *Nature Reviews Rheumatology*, 2019.
19. Simons D.G. Trigger points in chronic back pain. *Journal of Manual Therapy*, 2016.
20. Sh. Pulatova et al. Clinical and pathogenetic values of disorders of mineral metabolism in ankylosing spondylitis. *Philosophical Readings* 13.4 (2022): 20–28
21. Van der Heijde D. AS progression control. *Annals of the Rheumatic Diseases*, 2019.
22. Пулатова Ш.Б., Набиева Д.А. Assessment of the impact of mineral metabolism disorders on quality of life in patients with ankylosing spondylitis. *Neurology*, 2022, No.3 (91): 16–18.
23. Пулатова Ш.Б., Набиева Д.А. Clinical and pathogenetic significance of mineral metabolism disorders in ankylosing spondylitis. *Journal “Biomedical and Practice”*, Vol.7, Issue 5, 2022, pp.104–116.