International Journal of Innovative Technologies in Social Science

e-ISSN: 2544-9435

Operating Publisher
SciFormat Publishing Inc.
ISNI: 0000 0005 1449 8214

2734 17 Avenue SW,
Calgary, Alberta, T3E0A7,
Canada
+15878858911
editorial-office@sciformat.ca

ARTICLE TITLE	LIFESTYLE INTERVENTIONS IN THE MANAGEMENT OF ENDOMETRIOSIS-ASSOCIATED PAIN: A NARRATIVE REVIEW
DOI	https://doi.org/10.31435/ijitss.1(49).2026.5438
RECEIVED	02 February 2026
ACCEPTED	16 March 2026
PUBLISHED	30 March 2026
LICENSE	The article is licensed under a **Creative Commons Attribution 4.0 International License.**

LIFESTYLE INTERVENTIONS IN THE MANAGEMENT OF ENDOMETRIOSIS-ASSOCIATED PAIN: A NARRATIVE REVIEW

Karolina Orda *(Corresponding Author, Email: orda.karolina19@gmail.com)*
4th Military Clinical Hospital in Wrocław, Wrocław, Poland
ORCID ID: 0009-0002-0996-137X

Karolina Niewola
4th Military Clinical Hospital in Wrocław, Wrocław, Poland
ORCID ID: 0009-0003-8096-9742

Kamil Arciszewski
Sapienza University of Rome, Rome, Italy
ORCID ID: 0009-0003-2679-0872

Natalia Hariasz
4th Military Clinical Hospital in Wrocław, Wrocław, Poland
ORCID ID: 0009-0000-5397-0324

Philip Kłakowicz
Lower Silesian Center for Oncology, Pulmonology and Hematology, Wrocław, Poland
ORCID ID: 0009-0003-0431-8710

Jakub Szumiło
Wrocław Medical University, Wrocław, Poland
ORCID ID: 0009-0008-5105-4857

Klaudia Kasperska
Specialist Medical Center, Polanica-Zdrój, Poland
ORCID ID: 0009-0002-3512-7696

Mariana Markiv
Jagiellonian University, Kraków, Poland
ORCID ID: 0009-0006-0679-8131

Michał Słowik
Wrocław Medical University, Wrocław, Poland
ORCID ID: 0009-0004-1206-528X

Paweł Stenzel
University Dental Clinic, Kraków, Poland
ORCID ID: 0009-0003-0347-8552

ABSTRACT

Endometriosis is a chronic inflammatory condition associated with significant pain, reduced quality of life, and functional impairment. Although pharmacological and surgical treatments remain the standard of care, increasing attention has been directed toward lifestyle and non-pharmacological interventions as supportive management strategies. The aim of this narrative review was to evaluate the role of physical activity, dietary interventions, physiotherapy, and psychological approaches in the management of endometriosis-associated pain.

A literature search was conducted using major electronic databases, including PubMed, Scopus, and Web of Science, focusing on studies examining non-pharmacological interventions in women with endometriosis. Both interventional and observational studies, as well as systematic reviews, were included.

The available evidence suggests that lifestyle interventions may influence multiple mechanisms involved in endometriosis, including inflammation, hormonal regulation, neuromuscular function, and central pain processing. Physical activity appears to reduce pain and improve psychological well-being, although participation remains limited due to symptom burden. Dietary strategies, particularly anti-inflammatory patterns, may contribute to symptom improvement, while physiotherapy and psychological interventions address functional and emotional aspects of chronic pain. Multimodal approaches appear to provide the most consistent benefits.

Despite promising findings, the evidence remains heterogeneous and limited by methodological variability. Lifestyle interventions should be considered as complementary strategies within a multidisciplinary treatment framework. Further high-quality studies are needed to establish standardized clinical recommendations.

KEYWORDS

Endometriosis, Chronic Pelvic Pain, Lifestyle Interventions, Physical Activity, Physiotherapy, Dietary Interventions, Psychological Interventions, Quality of Life

CITATION

Karolina Orda, Karolina Niewola, Kamil Arciszewski, Natalia Hariasz, Philip Kłakowicz, Jakub Szumiło, Klaudia Kasperska, Mariana Markiv, Michał Słowik, Paweł Stenzel. (2026) Lifestyle Interventions in the Management of Endometriosis-Associated Pain: A Narrative Review. *International Journal of Innovative Technologies in Social Science*. 1(49). doi: 10.31435/ijitss.1(49).2026.5438

1. Introduction

Endometriosis is a chronic, estrogen-dependent inflammatory disease characterized by the presence of endometrial-like tissue outside the uterine cavity [1,2]. It affects approximately 10% of women of reproductive age and is a major cause of chronic pelvic pain, infertility, and reduced quality of life [1–3]. The clinical presentation is heterogeneous and includes dysmenorrhea, non-cyclic pelvic pain, dyspareunia, fatigue, and gastrointestinal symptoms, all of which may significantly impair daily functioning and psychosocial well-being [3,4].

The pathophysiology of endometriosis-associated pain is complex and multifactorial. Chronic inflammation, increased production of pro-inflammatory cytokines and prostaglandins, neuroangiogenesis, and both peripheral and central sensitization contribute to the development and persistence of pain [5,6]. In addition, psychological factors such as stress, anxiety, and depression may further amplify pain perception and worsen disease burden, supporting a biopsychosocial model of the disease [4,5].

Current management strategies are primarily based on pharmacological treatment and surgical intervention. Hormonal therapy remains the cornerstone of treatment and aims to suppress disease activity and reduce symptoms, while surgery is used to remove endometriotic lesions in selected cases [2]. However, these approaches are often associated with incomplete symptom relief, recurrence, and potential adverse effects, which highlights the need for additional supportive strategies [2,7].

In recent years, there has been growing interest in non-pharmacological approaches, particularly lifestyle interventions. Physical activity, dietary modification, physiotherapy, and psychological interventions have been proposed as potential modulators of inflammation, hormonal balance, neuromuscular function, and

pain perception [8,9]. Emerging evidence suggests that these interventions may improve pain and quality of life in women with endometriosis; however, the available data remain heterogeneous, and clear clinical recommendations are still lacking due to variability in study design and intervention protocols [8,9].

Therefore, the aim of this narrative review is to comprehensively evaluate the role of lifestyle and non-pharmacological interventions in the management of endometriosis-associated pain, with particular emphasis on their biological mechanisms, clinical relevance, and limitations of current evidence.

2. Methodology

This study was conducted as a narrative review to synthesize current evidence on lifestyle and non-pharmacological interventions in the management of endometriosis-associated pain. The analysis focused on physical activity, physiotherapy, dietary interventions, and psychological approaches.

A literature search was performed using PubMed, Scopus, and Web of Science. Keywords included “endometriosis”, “physical activity”, “exercise”, “physiotherapy”, “diet”, “nutrition”, “lifestyle”, “psychological intervention”, “pain”, and “quality of life”.

Studies were selected based on relevance and included interventional, observational, and review studies involving women with endometriosis that reported outcomes related to pain, quality of life, or psychological well-being. Studies focused solely on pharmacological or surgical treatments were excluded.

Due to heterogeneity, a qualitative narrative synthesis was conducted, and findings were organized into thematic categories.

3. Results

3.1. Physical Activity in the Management of Endometriosis

Physical activity is increasingly recognized as an important supportive component in the management of endometriosis, particularly in relation to chronic pain, fatigue, and reduced functional capacity. Given the long-term and recurrent nature of the condition, exercise is often incorporated into treatment strategies aimed at improving both physical and psychological outcomes.

Exercise may influence key mechanisms involved in endometriosis, including inflammation, neuromuscular function, and circulation. Evidence suggests that physical activity may contribute to symptom reduction through anti-inflammatory effects and improved pain modulation [10, 11, 12].

Aerobic activities such as walking, cycling, and swimming are commonly recommended due to their ability to improve cardiovascular function and reduce chronic pelvic pain [10]. Resistance training focused on core and pelvic stabilization may further support posture and reduce biomechanical strain associated with persistent pain [10].

Flexibility-based exercise, including stretching, yoga, and Pilates, may improve mobility and reduce myofascial tension. These forms of activity are frequently adopted by patients as part of self-management strategies [13]. Mind–body approaches that combine movement with breathing and relaxation may additionally support stress regulation and coping with chronic symptoms [10].

Despite these potential benefits, research indicates that women with endometriosis tend to engage in lower levels of physical activity compared to healthy controls, likely due to pain and fatigue [14]. Additional studies highlight perceived barriers such as exhaustion and symptom severity, which limit participation in regular exercise [15]. These findings emphasize the need for individualized exercise programs that incorporate pacing and gradual progression.

In addition to physical symptoms, motivational and psychological factors may also influence exercise participation. da Luz et al. (2025) reported that women with endometriosis characterized by lower self-determination and more thwarted basic psychological needs were substantially less likely to engage in physical activity[16]. This suggests that barriers to exercise may involve not only pain and fatigue, but also reduced autonomy, competence, and perceived support related to movement behavior.

At the same time, higher levels of physical activity have been associated with lower pain intensity and better functional outcomes, suggesting that exercise may play an important role in symptom self-management [13].

Systematic reviews and meta-analyses confirm that structured exercise interventions may reduce dysmenorrhea, chronic pelvic pain, and dyspareunia, while also improving quality of life [11, 12]. However, variability in intervention design limits the ability to establish standardized recommendations[17].

A recent cross-sectional study by Hartmann et al. (2025) adds a more specific perspective to the current evidence by suggesting that the duration of individual exercise sessions may be more relevant than exercise intensity in women with endometriosis. Longer single exercise sessions were associated with lower levels of

C-reactive protein, estradiol, android and gynoid fat mass, as well as lower pain scores. In contrast, no significant associations were observed for total exercise volume or vigorous-intensity MET values[18]. Although these findings should be interpreted cautiously because of the small sample size and observational design, they suggest that exercise prescription in endometriosis may need to consider not only how intense exercise is, but also how long each session lasts.

Emerging approaches, including remotely delivered exercise programs combined with education, have demonstrated feasibility and may help overcome barriers related to accessibility and symptom burden [19]. Additionally, multimodal supervised exercise interventions have been shown to improve fatigue, sleep quality, mental health, gastrointestinal symptoms, and sexual function in women with persistent symptoms [20].

Integrating physical activity into broader lifestyle strategies may further enhance outcomes, particularly when combined with holistic and multidisciplinary approaches [21, 22].

Taken together, current evidence suggests that physical activity represents a promising adjunct strategy in endometriosis management; however, its effectiveness depends not only on biological mechanisms but also on adherence, motivation, and individualized program design.

3.2 Physiotherapy in the Management of Endometriosis

Physiotherapy plays an important role in addressing the musculoskeletal and functional aspects of endometriosis, particularly in patients with chronic pelvic pain.

Pelvic floor dysfunction is commonly observed in women with endometriosis and may contribute to symptoms such as dyspareunia and persistent pelvic discomfort. Increased muscle tone, reduced flexibility, and impaired coordination are frequently reported findings [23].

Pelvic floor physiotherapy focuses on restoring muscle function through techniques such as relaxation training, coordination exercises, and biofeedback. These approaches may help reduce muscle hypertonicity and improve neuromuscular control, leading to decreased pain and improved daily functioning [23].

Manual therapy and myofascial release are also commonly used to address tissue restrictions in the abdominal wall, lumbar region, and pelvic structures. These dysfunctions often arise from chronic inflammation, adhesions, and compensatory movement patterns [23].

Modern physiotherapy approaches increasingly incorporate multimodal strategies that combine therapeutic exercise with patient education and self-management techniques. Such programs aim not only to reduce pain but also to improve long-term outcomes and patient engagement [19].

Physiotherapy is most effective when integrated into a broader multidisciplinary approach that includes physical activity and lifestyle interventions. This allows for simultaneous targeting of physical, functional, and psychosocial aspects of the disease [21, 22].

In addition to reducing pain, physiotherapy may improve movement patterns, posture, and overall physical function. Preliminary evidence also suggests that regular movement and rehabilitation may positively influence psychological well-being and quality of life[24].

3.3 Dietary Interventions in the Management of Endometriosis

Dietary approaches are increasingly considered a relevant supportive element in the management of endometriosis, particularly due to their potential influence on inflammation, hormonal regulation, and metabolic processes. Given the multifactorial nature of the disease, nutritional strategies may contribute not only to symptom relief but also to overall health and quality of life.

A growing body of evidence suggests that dietary patterns characterized by high consumption of plant-based foods and unsaturated fats may be beneficial. Diets rich in vegetables, fruits, whole grains, and sources of omega-3 fatty acids have been associated with reduced inflammatory activity, which is a key component of endometriosis pathophysiology [25,26]. In contrast, frequent consumption of highly processed foods, refined sugars, and saturated fats may promote inflammation and negatively affect symptom control [25,27].

Beyond general dietary patterns, specific nutritional components may also play a role. Antioxidants and polyphenols, including vitamins C and E as well as plant-derived bioactive compounds, have been shown to counteract oxidative stress, which contributes to lesion development and persistence [25,26]. Similarly, adequate intake of dietary fiber may support estrogen metabolism and contribute to maintaining a balanced gut microbiota, which may indirectly influence disease activity [25,28].

Maintaining appropriate nutritional status is another important consideration. Micronutrients such as vitamin D and magnesium have been proposed to influence inflammatory pathways and neuromuscular function, although the current evidence is still limited and not fully consistent [25,28]. In addition, achieving

and maintaining a healthy body weight may support metabolic and hormonal balance, which may further contribute to symptom management [25].

Interventional studies provide further support for the potential benefits of dietary modification. For example, a controlled prospective study demonstrated that implementing an anti-inflammatory dietary program resulted in reductions in pain intensity and improvements in quality of life over several months [29]. Consistent with these findings, systematic and scoping reviews indicate that dietary models such as Mediterranean or plant-based diets may be associated with improved clinical outcomes in women with endometriosis[25,27,30].

Moreover, nutritional interventions appear to have broader effects beyond pain reduction. Improvements have been reported in fatigue levels, gastrointestinal symptoms, and psychological well-being, suggesting that diet may influence multiple dimensions of the disease [27,28].

Recent narrative evidence also suggests that the most clinically relevant dietary benefits may result not from isolated nutrients alone, but from broader dietary patterns. In particular, Mediterranean-style and low-inflammatory dietary models have been associated with reductions in pain and gastrointestinal symptoms, supporting the idea that whole-diet approaches may be more useful in practice than focusing exclusively on single nutrients or supplements [8].

Despite these promising observations, the current evidence base remains heterogeneous. Variability in study design, dietary composition, and duration of interventions makes it difficult to establish clear clinical guidelines. Furthermore, some studies rely on self-reported dietary intake, which may introduce bias.

Recent high-level evidence further supports the complexity of the relationship between diet and endometriosis. An umbrella review by Neri et al. (2024), which synthesized findings from multiple systematic reviews, reported that higher intake of vegetables and dairy products may be associated with a reduced risk of endometriosis, while increased consumption of caffeine and butter may be linked to higher risk. However, the authors emphasized that the overall strength of evidence remains low and heterogeneous, highlighting the lack of consistent and high-quality data[31].

Overall, available data support the inclusion of dietary counseling as part of a comprehensive and individualized management strategy for endometriosis. The greatest therapeutic benefit is likely achieved when dietary interventions are combined with other lifestyle modifications, including physical activity and psychological support [25,28,30].

3.4 Psychological Interventions in the Management of Endometriosis

Psychological interventions are increasingly recognized as an essential component of comprehensive endometriosis management, particularly in addressing the complex relationship between chronic pain and emotional well-being. The burden of endometriosis extends beyond physical symptoms, as many patients experience psychological distress related to persistent pain, fatigue, infertility concerns, and limitations in daily functioning.

Chronic pelvic pain is closely linked with cognitive and emotional processes, which can influence both pain perception and coping capacity. For this reason, psychological approaches aim not only to reduce distress but also to modify maladaptive thought patterns, improve coping strategies, and enhance overall quality of life.

Among the available approaches, cognitive-behavioral therapy has been the most widely studied. This form of intervention focuses on identifying and restructuring unhelpful thoughts, reducing pain catastrophizing, and promoting adaptive behavioral responses. Evidence suggests that cognitive-behavioral strategies may improve coping mechanisms and reduce psychological distress in women with endometriosis [32,33].

Mindfulness-based interventions represent another important therapeutic option. These approaches emphasize awareness of present-moment experiences and acceptance of physical sensations, which may help reduce emotional reactivity to pain. Clinical studies indicate that mindfulness-based programs can improve emotional well-being and quality of life, even in cases where pain itself remains persistent [34].

Recent developments have also highlighted the role of digitally delivered psychological interventions. Internet-based programs designed for pain management have demonstrated effectiveness in reducing stress, pain-related anxiety, and functional impairment, while also increasing accessibility for patients who may not be able to attend in-person therapy [35].

In addition to single-modality approaches, multimodal psychological interventions have been explored. These strategies combine cognitive techniques with relaxation training or somatosensory stimulation, aiming to address both the psychological and physiological aspects of chronic pain. Evidence from randomized controlled trials suggests that such integrated approaches may lead to reductions in pain intensity and improvements in daily functioning [36].

Systematic reviews and meta-analyses further support the role of psychological interventions in endometriosis. While their impact on objective pain measures is variable, consistent improvements have been observed in psychological outcomes, including emotional well-being, perceived quality of life, and coping ability [37].

Importantly, these findings highlight that psychological interventions should not be viewed as a substitute for medical treatment, but rather as a complementary component of multidisciplinary care. Addressing psychological factors may be particularly relevant in patients with persistent symptoms, where central sensitization and emotional distress contribute to the overall disease burden.

In summary, psychological interventions offer meaningful benefits in the management of endometriosis by targeting the cognitive and emotional dimensions of chronic pain. Their integration into clinical practice may improve both patient experience and long-term outcomes, especially when combined with other lifestyle and medical strategies.

These findings reinforce the importance of addressing central pain mechanisms and emotional regulation as integral components of endometriosis management.

4. Discussion

The findings of this review highlight the growing importance of lifestyle and non-pharmacological interventions in the management of endometriosis-associated pain. Physical activity, dietary modification, physiotherapy, and psychological support appear to influence multiple mechanisms involved in the pathophysiology of the disease, including inflammation, hormonal regulation, neuromuscular dysfunction, and central pain processing. This multidimensional impact supports the concept of endometriosis as a complex biopsychosocial condition rather than a purely gynecological disorder.

An important observation emerging from this review is that the effectiveness of lifestyle interventions is unlikely to be driven by a single mechanism, but rather by interactions between biological, behavioral, and psychological factors. This may explain why multimodal approaches appear to be more effective than isolated interventions.

The findings are consistent with recent literature emphasizing that lifestyle-related factors may influence endometriosis through overlapping biological and behavioral pathways. In addition to inflammation and hormonal regulation, current evidence highlights the role of oxidative stress, gut microbiota composition, sleep quality, and psychological stress in shaping symptom severity and overall disease burden [8]. This broader perspective supports the view that lifestyle-based interventions should be considered as components of a multidimensional and individualized model of care rather than isolated measures.

Among the reviewed interventions, physical activity emerges as one of the most consistently supported strategies. Evidence indicates that exercise may reduce pain intensity, improve functional capacity, and enhance psychological well-being. However, despite these benefits, women with endometriosis tend to engage in lower levels of physical activity compared to healthy populations, largely due to pain, fatigue, and reduced physical tolerance [14,15]. This discrepancy highlights a critical gap between theoretical benefits and real-world implementation, representing a key challenge in integrating lifestyle interventions into routine clinical care. It also suggests that future interventions should focus not only on efficacy, but also on feasibility, adherence, and individualized program design.

Another important consideration is that the therapeutic effect of exercise may depend not only on participation, but also on specific characteristics of the exercise dose. Hartmann et al. reported that longer individual exercise sessions were associated with lower pain scores, reduced C-reactive protein levels, and lower estradiol concentrations, whereas exercise intensity and total weekly volume were not significantly related to these outcomes. [18] This suggests that, in endometriosis, exercise duration may be a more relevant factor than intensity alone. However, given the cross-sectional design and relatively small sample size, these findings require confirmation in larger prospective and interventional studies.

Motivational factors also appear to play a significant role in physical activity engagement. da Luz et al. (2025) demonstrated that women with lower self-determination and more thwarted basic psychological needs were six to seven times less likely to engage in physical activity[16]. These findings indicate that reduced exercise participation may not result solely from physical symptoms, but also from diminished autonomy, competence, and perceived support. This highlights the importance of individualized and psychologically informed interventions aimed at improving motivation and long-term adherence.

Dietary interventions also show considerable potential, particularly in modulating inflammation and oxidative stress. Anti-inflammatory dietary patterns and specific nutrients, such as omega-3 fatty acids and

antioxidants, have been associated with symptom improvement [25,26]. However, the available evidence remains heterogeneous, with substantial variation in dietary protocols and outcome measures, which limits the ability to establish clear clinical recommendations [27,28]. This uncertainty is further reflected in umbrella-level evidence. Neri et al. reported that although certain dietary patterns, such as higher consumption of vegetables and dairy products, may be associated with reduced risk, the overall strength of evidence remains low. The authors also identified potential risk factors, including high caffeine intake and butter consumption. [31]

Importantly, the predominance of observational data and methodological heterogeneity limit the ability to draw firm conclusions.

Psychological interventions address another crucial dimension of endometriosis. Chronic pain is strongly influenced by cognitive and emotional processes, and interventions such as cognitive-behavioral therapy and mindfulness-based approaches have been shown to improve coping strategies and quality of life [32,34]. Notably, these approaches may be beneficial even when pain persists, suggesting that improving adaptation to chronic symptoms is as important as reducing symptom intensity. However, variability in outcomes indicates that psychological interventions should be tailored to individual patient profiles and integrated with other treatment modalities [37].

Physiotherapy provides an important link between physical and functional aspects of the disease. By targeting pelvic floor dysfunction, myofascial restrictions, and movement patterns, physiotherapy may directly address sources of pain that are not fully managed by pharmacological treatment [23]. Its integration with exercise and patient education further supports a multimodal approach to care.

A key theme emerging from the literature is the importance of combining multiple interventions. Evidence suggests that multimodal programs integrating physical activity, education, and psychological support may provide broader and more consistent benefits than single-modality approaches [20,22]. This aligns with the current understanding of chronic pain as a condition requiring interdisciplinary management.

Despite these promising findings, the current evidence base remains limited and, in some areas, inconsistent. First, substantial heterogeneity in study design, intervention type, duration, and outcome measures reduces comparability between studies and limits the ability to draw definitive conclusions. Second, many studies rely on self-reported data, which may introduce bias. Third, the number of high-quality randomized controlled trials remains limited, particularly in the field of lifestyle interventions.

Another important limitation is the lack of standardized protocols for interventions such as exercise and diet. Without clear guidelines, clinical implementation remains inconsistent and often dependent on individual practitioner experience. Additionally, many studies focus on short-term outcomes, with limited data on long-term effectiveness and sustainability.

Future research should prioritize well-designed randomized controlled trials with clearly defined intervention protocols and standardized outcome measures. Further studies should also explore personalized approaches that take into account individual variability in symptoms, disease severity, and patient preferences. Greater attention should be given to long-term adherence and real-world applicability of lifestyle interventions.

5. Conclusions

Endometriosis is a complex, multifactorial condition in which pain arises from the interaction of inflammatory, hormonal, neuromuscular, and psychological mechanisms. The findings of this review indicate that lifestyle interventions, including physical activity, physiotherapy, dietary modification, and psychological support, may provide clinically relevant benefits as adjunctive strategies in symptom management.

These interventions appear to influence multiple pathophysiological pathways and contribute to improvements in pain, functional capacity, and quality of life. Importantly, their effectiveness is likely enhanced when implemented within a multimodal and individualized framework, rather than as isolated strategies.

However, the current evidence remains heterogeneous and is largely based on observational or small-scale studies, which limits the strength of clinical recommendations. Therefore, lifestyle interventions should be considered complementary to, rather than replacements for, standard pharmacological and surgical treatments.

Future research should focus on high-quality randomized controlled trials and on developing personalized, patient-centered intervention models that integrate biological, behavioral, and psychological dimensions of the disease. Such approaches may represent a promising direction for improving long-term outcomes in women with endometriosis.

The Funding Statement: Study did not receive any special funding.

Conflict of interest statement: The authors of this article report no conflict of interest.

REFERENCES

1. Zondervan, K. T., et al. (2018). Endometriosis. *Nature Reviews Disease Primers, 4*(1), 9. https://doi.org/10.1038/s41572-018-0008-5
2. Taylor, H. S., et al. (2021). Endometriosis is a chronic systemic disease: Clinical challenges and novel innovations. *The Lancet, 397*(10276), 839–852. https://doi.org/10.1016/S0140-6736(21)00389-5
3. Facchin, F., et al. (2015). Impact of endometriosis on quality of life and mental health: Pelvic pain makes the difference. *Journal of Psychosomatic Obstetrics & Gynecology, 36*(4), 135–141. https://doi.org/10.3109/0167482X.2015.1074173
4. Cuffaro, F., et al. (2024). Endometriosis, pain, and related psychological disorders: Unveiling the interplay among the microbiome, inflammation, and oxidative stress as a common thread. *International Journal of Molecular Sciences, 25*(12), 6473. https://doi.org/10.3390/ijms25126473
5. Vercellini, P., et al. (2014). Endometriosis: Pathogenesis and treatment. *Nature Reviews Endocrinology, 10*(5), 261–275. https://doi.org/10.1038/nrendo.2013.255
6. As-Sanie, S., et al. (2013). Increased pressure pain sensitivity in women with chronic pelvic pain. *Obstetrics & Gynecology, 122*(5), 1047–1055. https://doi.org/10.1097/AOG.0b013e3182a7e1f5
7. Dunselman, G. A. J., et al. (2014). ESHRE guideline: Management of women with endometriosis. *Human Reproduction, 29*(3), 400–412. https://doi.org/10.1093/humrep/det457
8. Boroncsok, D., et al. (2026). The role of lifestyle and diet in the treatment of endometriosis: A review. *Nutrients, 18*(1), 142. https://doi.org/10.3390/nu18010142
9. As-Sanie, S., et al. (2019). Assessing research gaps and unmet needs in endometriosis. *American Journal of Obstetrics and Gynecology, 221*(2), 86–94. https://doi.org/10.1016/j.ajog.2019.02.033
10. Tourny, C., et al. (2023). Endometriosis and physical activity: A narrative review. *International Journal of Gynecology & Obstetrics, 163*(3), 747–756. https://doi.org/10.1002/ijgo.14898
11. Xie, M., et al. (2025). The effectiveness and safety of physical activity and exercise on women with endometriosis: A systematic review and meta-analysis. *PLOS ONE, 20*(2), e0317820. https://doi.org/10.1371/journal.pone.0317820
12. Tennfjord, M. K., et al. (2021). Effect of physical activity and exercise on endometriosis-associated symptoms: A systematic review. *BMC Women's Health, 21*(1), 355. https://doi.org/10.1186/s12905-021-01500-4
13. Werner, F., Jasinski, V., Velho, R. V., et al. (2025). The role of self-management in endometriosis pain: Insights from a cross-sectional survey in Germany, Austria, and Switzerland. *Archives of Gynecology and Obstetrics, 312*, 425–434. https://doi.org/10.1007/s00404-025-08019-1
14. Sachs, M. K., et al. (2023). Physical activity in women with endometriosis: Less or more compared with a healthy control? *International Journal of Environmental Research and Public Health, 20*(17), 6659. https://doi.org/10.3390/ijerph20176659
15. Blanco-Martínez, N., et al. (2025). Perceived barriers and physical activity levels in women with endometriosis: The role of symptoms. *Women & Health, 65*(7), 638–649. https://doi.org/10.1080/03630242.2025.2549986
16. Medeiros da Luz, C., Matias, T. S., de Paula, R. R., Araujo, J., Nascimento, F. C., de Oliveira, Y. V., Camargos, E., Freitas, C. D., & Karloh, M. (2025). Six to seven times less likely to be physically active: Low self-determination and basic psychological needs support in women with endometriosis—A cluster analysis. *PLOS ONE, 20*(8), e0330446. https://doi.org/10.1371/journal.pone.0330446
17. Hansen, S., et al. (2021). Impact of exercise on pain perception in women with endometriosis: A systematic review. *Acta Obstetricia et Gynecologica Scandinavica, 100*(9), 1595–1601. https://doi.org/10.1111/aogs.14169
18. Hartmann, T. E., Baker, K. A., & Girard, D. (2025). Is exercise duration more important than intensity in endometriosis? *BMC Women's Health, 25*(1), 625. https://doi.org/10.1186/s12905-025-04160-w
19. Escriva-Boulley, G., et al. (2023). Effects of a physical activity and endometriosis-based education program delivered by videoconference on endometriosis symptoms: The CRESCENDO program (inCRease physical Exercise and Sport to Combat ENDOmetriosis) protocol study. *Trials, 24*(1), 759. https://doi.org/10.1186/s13063-023-07792-1
20. Salinas-Asensio, M., Álvarez-Salvago, F., Mundo-López, A., et al. (2025). Changes in fatigue, health-related fitness, sleep quality, mental health, gastrointestinal complaints and sexual function after a multimodal supervised therapeutic exercise program in women with endometriosis unresponsive to conventional therapy: A secondary analysis of a randomized controlled trial. *European Journal of Obstetrics & Gynecology and Reproductive Biology, 312*. https://doi.org/10.1016/j.ejogrb.2025.114083
21. Desai, J., et al. (2024). Holistic approaches to living well with endometriosis. *F1000Research, 13*, 359. https://doi.org/10.12688/f1000research.142586.2
22. Mazur-Bialy, A., et al. (2024). Holistic approaches in endometriosis - as an effective method of supporting traditional treatment: A systematic search and narrative review. *Reproductive Sciences, 31*(11), 3257–3274. https://doi.org/10.1007/s43032-024-01660-2
23. Shved, K., Antkowiak, K., Kędzierska, Z., Żurek, U., Dadas, K., Świercz, A., Małachowska, D., Ciecierski-Koźlarek, H., & Tołwiński, I. (2023). Physiotherapy and physical activity as adjunctive treatments in women with symptomatic endometriosis – Literature review. *Medycyna Ogólna i Nauki o Zdrowiu, 29*(3), 145–149. https://doi.org/10.26444/monz/169984

24. Bianco, A., Gentile, A., Russo, M., Maiorana, A., Lavanco, G., Mellina, A., & Palma, A. (2021). Self-esteem, quality of life, and physical activity in women with diagnosed endometriosis: A pilot study in an Italian sample. *Human Movement, 22*(4), 93–97. https://doi.org/10.5114/hm.2021.103295
25. Barnard, N. D., et al. (2023). Nutrition in the prevention and treatment of endometriosis: A review. *Frontiers in Nutrition, 10*, 1089891. https://doi.org/10.3389/fnut.2023.1089891
26. Sienko, A., Cichosz, A., Urban, A., Smolarczyk, R., Czajkowski, K., & Sienko, J. (2023). The effect of two anti-inflammatory dietary components, omega-3 and resveratrol, on endometriosis. *Ginekologia Polska, 94*(10), 721–728. https://doi.org/10.5603/gpl.97573
27. Meneghetti, J. K., et al. (2024). Effect of dietary interventions on endometriosis: A systematic review and meta-analysis of randomized controlled trials. *Reproductive Sciences, 31*(12), 3613–3623. https://doi.org/10.1007/s43032-024-01701-w
28. De Araugo, S. C., et al. (2025). Nutrition interventions in the treatment of endometriosis: A scoping review. *Journal of Human Nutrition and Dietetics, 38*(1). https://doi.org/10.1111/jhn.13411
29. van Haaps, A. P., et al. (2023). The effect of dietary interventions on pain and quality of life in women diagnosed with endometriosis: A prospective study with control group. *Human Reproduction, 38*(12), 2433–2446. https://doi.org/10.1093/humrep/dead214
30. Abulughod, N., et al. (2024). Dietary and nutritional interventions for the management of endometriosis. *Nutrients, 16*(23), 3988. https://doi.org/10.3390/nu16233988
31. Neri, L. C. L., et al. (2025). Diet and endometriosis: An umbrella review. *Foods, 14*(12), 2087. https://doi.org/10.3390/foods14122087
32. Donatti, L., et al. (2022). Cognitive behavioral therapy in endometriosis, psychological based intervention: A systematic review. *Revista Brasileira de Ginecologia e Obstetrícia, 44*(3), 295–303. https://doi.org/10.1055/s-0042-1742406
33. Donatti, L., et al. (2025). Efficacy of cognitive behavioral therapy in treating women with endometriosis and chronic pelvic pain: A randomized trial. *Journal of Health Psychology, 30*(5), 1004–1016. https://doi.org/10.1177/13591053241240198
34. Hansen, K. E., et al. (2023). Psychological interventions improve quality of life despite persistent pain in endometriosis: Results of a 3-armed randomized controlled trial. *Quality of Life Research, 32*(6), 1727–1744. https://doi.org/10.1007/s11136-023-03346-9
35. Chandra, S. S., Bisby, M. A., Scott, A. J., Titov, N., & Dear, B. F. (2026). The endometriosis pain course: A randomized controlled trial of an internet-delivered psychological pain management program for endometriosis. *PAIN, 167*(1), 80–93. https://doi.org/10.1097/j.pain.0000000000003784
36. Meissner, K., et al. (2016). Psychotherapy with somatosensory stimulation for endometriosis-associated pain: A randomized controlled trial. *Obstetrics & Gynecology, 128*(5), 1134–1142. https://doi.org/10.1097/AOG.0000000000001691
37. Del Pino-Sedeño, T., et al. (2024). Effectiveness of psychological interventions in endometriosis: A systematic review with meta-analysis. *Frontiers in Psychology, 15*, 1457842. https://doi.org/10.3389/fpsyg.2024.1457842