KRZEMIŃSKA, Paulina, GOŁĘBSKI, Maciej, NOWAK, Wojciech, MIKOŁAJCZYK, Jagoda, KUKŁA, Zuzanna, MIERUSZYŃSKA, Stella, SADOWSKA, Izabela, KOŁODZIEJ, Joanna, SAWICKI, Mirosław, WŁOSIAŃSKI, Jakub, and MUSIALIK, Sebastian. Nutrition and Physical Therapy in the Prevention and Treatment of Endometriosis. Quality in Sport. 2025;38:58199. eISSN 2450-3118.
https://doi.org/10.12775/QS.2025.38.58199
https://apcz.umk.pl/QS/article/view/58199

The journal has been 20 points in the Ministry of Higher Education and Science of Poland parametric evaluation. Annex to the announcement of the Minister of Higher Education and Science of 05.01.2024. No. 32553.
Has a Journal's Unique Identifier: 201398. Scientific disciplines assigned: Economics and finance (Field of social sciences); Management and Quality Sciences (Field of social sciences).
Punkty Ministerialne z 2019 - aktualny rok 20 punktów. Załącznik do komunikatu Ministra Szkolnictwa Wyższego i Nauki z dnia 05.01.2024 r. Lp. 32553. Posiada Unikatowy Identyfikator Czasopisma: 201398.
Przypisane dyscypliny naukowe: Ekonomia i finanse (Dziedzina nauk społecznych); Nauki o zarządzaniu i jakości (Dziedzina nauk społecznych).

The authors declare that there is no conflict of interests regarding the publication of this paper.
Received: 24.01.2025. Revised: 29.01.2025. Accepted: 10.02.2025 Published: 10.02.2025.

Nutrition and Physical Therapy in the Prevention and Treatment of Endometriosis

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ABSTRACT

Endometriosis is a chronic inflammatory disease which the benign growth of functioning endometrial glands and stroma in ectopic locations, i.e. outside the uterine cavity. In the 60s of the twentieth century, endometriosis had become the main cause of surgery in women. Sick women suffering from this condition often have non-specific symptoms, such as pelvic pain and are often associated with the menstrual cycle. can lead to reduced mental, physical, and social well-being and a lower quality of life. There are many factors that predispose to the onset

and course of the disease. Some of them are physical activity and diet. There is a lack of high-quality, robust, randomized studies. However, available studies show that diet and physical activity reduce inflammation that occurs in endometriosis. They have a positive effect on markers of oxidative stress. The purpose of this review is to provide knowledge about the symptoms, effects of nutrition and physical activity in the prevention and treatment of endometriosis.
KEYWORDS: nutrition, physical therapy, exercise, diet, prevention, endometriosis

INTRODUCTION

Endometriosis is a disease in which there is chronic inflammation. It causes abnormal endometrial tissue to grow outside the uterine cavity. Its presence depends on the hormone – estrogen [1]. More than 100 years ago this disease was described. Primitively, these were accidental findings most often during surgery. In the 60s of the twentieth century, endometriosis had become the main cause of surgery in women [2].

OBJECTIVE

This article aims to present:

• the nutrition in the prevention and treatment of endometriosis

• the physical therapy and exercise in the prevention and treatment of endometriosis.

MATERIALS AND METHODS

To write this review article, 28 articles were analyzed containing keywords such as “nutrition”, “physical therapy”. “exercise”, “diet”, “prevention”, “endometriosis” in databases such as Medline, PubMed, books, Google Scholar, and other scientific articles.

CURRENT STATE OF KNOWLEDGE

Endometriosis is the benign growth of functioning endometrial glands and stroma in ectopic locations, i. e. outside the uterine. Studies have shown that the occurrence of endometriosis is influenced by genetic and inflammatory processes, hormonal and immunological mechanisms. It is also worth mentioning environmental and lifestyle factors [3,4]. The prevalence of endometriosis in Europe, North America, and Australia is approximately 5% in women of reproductive age. However, some suggest that the true rate is closer to 10% than 5% [5,6,7]. Diagnostic delay and symptoms can lead to reduced mental, physical, and social well-being and

a lower quality of life [8]. Sick women suffering from this condition often have non-specific symptoms, such as pelvic pain [1]. Symptoms are often associated with the menstrual cycle. Disease can be progressive and include:

- dysmenorrhea,
- dyschezia,
- dysuria,
- dyspareunia,
- chronic pelvic pain,
- infertility,
- bloating,
- constipation
- diarrhea,
- abdominal cramping [8].

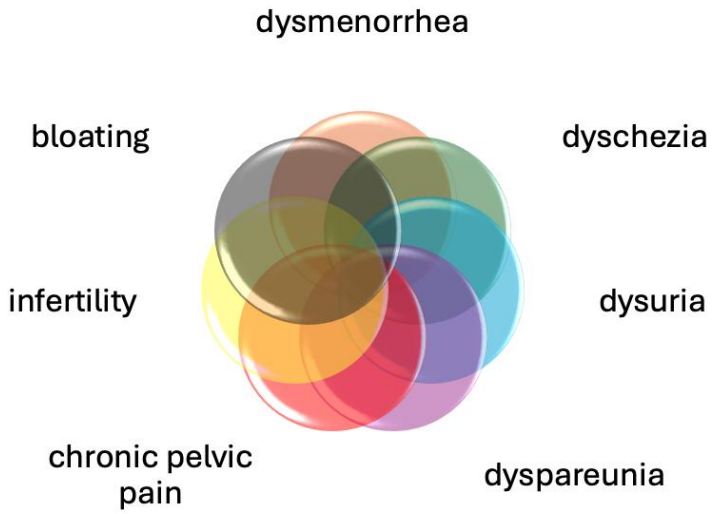

Figure 1. Symptoms.
Source: [8]

Treatment involves: pain treatment, hormonal therapy, surgery, and assisted reproductive techniques in case of infertility [8,9].

In recent years, complementary treatment methods have been increasingly used when conventional therapies are unsatisfactory [1,10]. Studies have shown that various types of exercise are effective in relieving acute pain. [1]. Whereas nutritional research suggests that proper diet and interventions could potentially affect endometriosis - reducing symptoms, shrink lesions, and prevent disease occurrence and progression [8].

NUTRITION

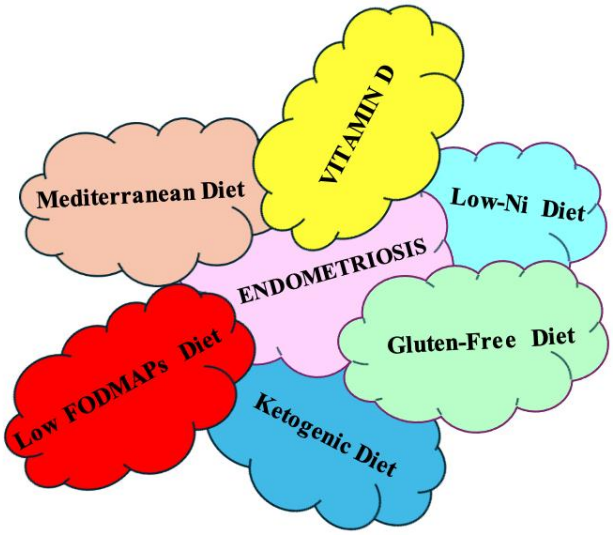

Figure 2. Nutrition in endometriosis

Vitamin D

In women with endometriosis, taking 50,000 IU of vitamin D every 2 weeks for 12 weeks reduced pelvic pain and high-sensitivity C-reactive protein levels, suggesting anti-inflammatory effects [7,11]. Another study found that low levels of vitamin D increased the risk of endometriosis diagnosis and the severity of symptoms [7,12].

Gluten-Free Diet

Gluten is a group of water-insoluble proteins found in wheat, barley, and rye. This diet involves the complete elimination of these products [13,14,15] A gluten-free diet is a frequently suggested diet for the treatment of endometriosis on social media. Unfortunately, its effectiveness is uncertain [8].

According to Schwartz et al, gluten ingestion is an unlikely trigger for endometriosis symptoms [8,16]. Women may quickly experience relief from symptoms after eliminating gluten, but symptoms may return when they consume gluten again. This is because they believe gluten is harmful to them [8].

Ketogenic Diet

The ketogenic diet is a diet high in fat, moderate in protein, and very low in carbohydrates.

The source of metabolic fuel here are endogenous ketones produced by the body [17].
Studies have shown that they have a positive effect on markers of oxidative stress and inflammation that occurs in endometriosis [18].

Low FODMAPs Diet

FODMAP is the acronym for fermentable oligosaccharides, disaccharides, monosaccharides and polyols [19]. Low FODMAP diet is a diet with a low content of these products [20]. According to a study Moore JS, Gibson PR, Perry RE et al. 72% women reported over than 50% improvement in bowel symptoms after four weeks diet. This diet appears effective in women with endometriosis and gut symptoms [19].

Low-Ni Diet

The study Borghini R, Porpora MG, Casale R et al. showed a statistically significant decrease in intensity symptoms for 3 months low-Ni diet [21].

Mediterranean Diet

This diet is defined as:
- daily consumption of non-refined cereals and other products (e.g., whole grain bread, whole grain pasta and brown rice),
- vegetables and fresh fruits,
-nuts,
-and low-fat dairy products,
-olive oil as the principal source of lipids
-moderate intake of alcohol - preferably red wine
-moderate consumption of fish, potatoes, eggs and sweets
-monthly consumption of red meat
- and regular physical activity [22].
The study Ott J, Nouri K, Hrebacka D, Gutschelhofer S et al. significant relief of dysmenorrhea, general pain, dyspareunia and dyschezia as well as an improvement in the general condition was found [23].

PHYSICAL ACTIVITY

Physiotherapy deals with the restoration of the efficiency and function of tissues and organs, supports the process of surgical treatment, relieves pain improving the quality of life. Regular exercise has a have anti-inflammatory effects because it induces an increase in levels of cytokines [24].

The study Youseflu S, Jahanian Sadatmahalleh S, Roshanzadeh G et al. showed women with physical activity more than 3 h per week endometriosis is less common [4]. The overall goal of treatment is to teach women to relax the pelvic muscles. It helps to break the pain cycle. In women with endometriosis undergoing hormone therapy has been shown that progressive muscle relaxation training to be more effective in reducing pain, anxiety, and depression [24].

Current research gives the potential benefit of exercise in patients with endometriosis as well as a cooperation between exercise and hormonal therapies for the management of endometriosis-related symptoms.

Yoga

The study Ravins I, Joseph G, Tene L forty-two women participated were included in the analysis. They were treated with conventional therapy for 8 weeks then eight weeks of 90-minute yoga classes twice a week. After the women completed the yoga intervention parameters such as blood flow and pain rating scale improved [25].

Acupuncture

Acupuncture is a traditional Chinese medical technique. It relies on stimulating specific points on the body. The study shows that it can help reduce pain. It has been proven that the effect of acupuncture has been shown to have a positive effect on reducing anxiety, stress, and improving sleep. Additionally, some studies emphasize that it has a potential for pain management [26,27].

Swimming

In Iran, they investigated the effect of swimming and omega-3 supplementation during an 8-week cycle on changes in endometrial tissue (in a rat model) in the expression of cyclooxygenase-2 and prostaglandin E2 genes and the level of reproductive hormones (follicle-stimulating hormone -FSH, luteinizing hormone-LH, and estradiol). 30 rats took part in the study. They were divided into 5 groups:

- healthy patient

- sick patient
- sick patient and exercise (5 days a week),
- sick patient and omega-3 (2 ml/kg/body weight)
- sick patient and omega-3(2 ml/kg/body weight) and exercise (5 days a week)

The study shown that swimming and omega-3 supplementation:

- separately
- or combined

reduce the expression genes and levels of hormones. The best effect was in the group with the sick swimming patient supplementing omega-3 [28].

Electrotherapy

TENS-Transcutaneous Electrical Nerve Stimulation. This method involves blocking the transmission of pain signals along nerves through electrical stimulation. TENS showed reduction of chronic pelvic pain, deep dyspareunia, and improvement of the quality of life of women with endometriosis [29].

Obstacle to progression in this area is the current paucity of high-quality robust studies [30].

CONCLUSION

The pathophysiology of endometriosis involves the actions of hormones, genetic and inflammatory processes. Evidence suggests that lifestyle factor such as diet and physical activity have important effects in this disease. Consumption ketogenic diet, Mediterranean diet, low FODMAPs diet, and vitamin D may have helpful effects for prevention and treatment endometriosis. They have an anti-inflammation effect and positive effect on markers of oxidative stress. The effectiveness of a gluten-free diet is uncertain. It is important to educate women about the objectives of the dietary intervention and forwarding to them on which nutrients to include or avoid.

When it comes to physical activity current research gives the potential benefit of exercise in patients with endometriosis. Unfortunately, the current paucity of high-quality robust studies, it is difficult to clearly determine the effectiveness of specific types of exercises in endometriosis treatment.

Disclosures

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All authors have read and agreed with the published version of the manuscript.

Financial disclosure

The study did not receive any funding.

Institutional Review Board Statement

Not applicable.

Informed Consent Statement

Not applicable.

Data Availability Statement

Not applicable.

Conflict of interest

The authors report no conflict of interest.

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