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Physical Activity and Its Impact on the Clinical Course and Quality of Life in Crohn's Disease

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Streszczenie

Wprowadzenie: Choroba Leśniowskiego-Crohna należy do grupy nieswoistych zapalnych chorób jelit. Ze względu na przewlekły i nawrotowy charakter choroby, znacząco obniża jakość życia pacjentów oraz negatywnie wpływa na ich zdrowie psychiczne. W ostatnich latach rośnie zainteresowanie rolą aktywności fizycznej jako elementu wspomagającego leczenie.

Cel pracy: Celem niniejszego artykułu jest przegląd aktualnego stanu wiedzy dotyczącej wpływu aktywności fizycznej na przebieg kliniczny oraz jakość życia pacjentów z chorobą Leśniowskiego-Crohna. Przegląd skupia się na potencjalnych korzyściach wynikających z podejmowania aktywności fizycznej, a także na możliwych ograniczeniach i zagrożeniach związanych z jej stosowaniem w różnych fazach choroby. Ocenione zostaną korzyści wynikające z regularnej aktywności fizycznej, takie jak poprawa jakości życia, łagodzenie objawów choroby oraz wsparcie procesu leczenia. Praca omówi zarówno fizyczne, jak i psychiczne aspekty wpływu aktywności fizycznej na pacjentów z chorobą Leśniowskiego-Crohna.

Materiał i metody: Wyszukiwania odbywały się w bazach PubMed, Scopus oraz Google Scholar. Uwzględniono publikacje naukowe z lat 2005–2025, koncentrujące się na wpływie aktywności fizycznej na pacjentów z chorobą Leśniowskiego-Crohna oraz innymi formami nieswoistych zapalnych chorób jelit.

Wyniki: Regularne ćwiczenia o umiarkowanej intensywności mogą łagodzić objawy, zmniejszać zmęczenie oraz poprawiać zdrowie psychiczne i jakość życia. Istnieją dowody sugerujące, że aktywność fizyczna może korzystnie wpływać na procesy zapalne oraz ryzyko zaostrzeń choroby. Jednak wciąż brakuje jednoznacznych rekomendacji dotyczących rodzaju i intensywności ćwiczeń, szczególnie w okresach zaostrzeń.

Wnioski: Aktywność fizyczna jest bezpieczną i potencjalnie skuteczną terapią uzupełniającą dla pacjentów z chorobą Leśniowskiego-Crohna, zwłaszcza w okresie remisji. Wymaga jednak indywidualnego dostosowania oraz dalszych badań.

Słowa kluczowe: choroba Leśniowskiego-Crohna; aktywność fizyczna; jakość życia; rehabilitacja; nieswoiste zapalne choroby jelit; ćwiczenia; zdrowie psychiczne; przewlekłe zapalenie; leczenie choroby; terapia uzupełniająca

Abstract

Introduction: Crohn's disease is a chronic inflammatory condition belongs to the group of inflammatory bowel diseases (IBD). Due to its chronic and relapsing nature, the disease significantly impairs patients' quality of life and negatively impacts their mental health. In recent years, there has been increasing interest in the role of physical activity as a supportive component of treatment.

Aim of study: The aim of this paper is to review the current state of knowledge regarding the impact of physical activity on the clinical course and quality of life in patients with Crohn's disease. The review focuses on the potential benefits of engaging in physical activity, as well as the possible limitations and risks associated with its implementation during different phases of the disease. The benefits of regular physical activity will be evaluated, including improvements in quality of life, reduction of disease symptoms, and support of the treatment and recovery process. The paper will discuss both the physical and psychological aspects of the impact of physical activity on patients with Crohn's disease

Material and methods: Searches were performed using the PubMed, Scopus, and Google Scholar databases. Scientific publications from the years 2005-2025 were included, focusing on the impact of physical activity on patients with Crohn's disease and other forms of IBD.

Results: Regular moderate-intensity exercise may alleviate symptoms, reduce fatigue, and improve mental health and quality of life. There is evidence suggesting that physical activity can have a beneficial effect on inflammatory processes and the risk of flare-ups. However, clear recommendations regarding the type and intensity of exercise, especially during periods of exacerbation, are still lacking.

Conclusions: Physical activity is a safe and potentially effective adjunct therapy for patients with Crohn's disease, especially during remission. However, it requires individual adjustment and further research.

Keywords: Crohn's disease; physical activity; quality of life; rehabilitation; inflammatory bowel disease, exercise, mental health, chronic inflammation, disease management, adjunct therapy

1. Introduction

Crohn's disease (CD) is a condition classified within the group of Inflammatory Bowel Diseases (IBD), which can affect any part of the gastrointestinal tract, from the oral cavity to the rectum. The disease has a multifactorial background, involving both genetic and environmental factors. The chronic nature of the disease, with periods of remission and flare-ups, along with side effects of the medications used, negatively impacts quality of life and mental health, and causes anxiety and depression in patients. [1] The treatment of Crohn's disease is complex and challenging. It is primarily based on pharmacotherapy, anti-inflammatory drugs, immunosuppressants, and biological agents are used, and in some cases, surgical interventions are necessary. Non-pharmacological elements of therapy, such as a proper diet, psychological support, and physical activity (PA), also play an important role. [2] Although they do not replace pharmacological treatment, these elements significantly contribute to improving patients' quality of life, alleviating symptoms, and supporting the maintenance of remission. [3]

2. Level of physical activity in patients with Crohn's disease.

A decrease in physical activity has been observed in patients with CD following diagnosis, which negatively affects the effectiveness of treatment. In many studies, the PA levels of individuals with Crohn's disease were statistically lower than those in the general population. Patients showed a decline in their previous levels of physical activity after receiving the diagnosis. [4] This phenomenon is complex. The disease activity level significantly influences the willingness to engage in physical activity. It has been noted that patients with Crohn's disease experience fatigue more intensely than healthy control groups and even patients with Ulcerative Colitis. [5] Factors affecting fatigue include disease activity and symptom severity, sleep quality, depression and anxiety, as well as past surgical procedures and patient age. Fatigue may also be a side effect of the medications used. Fatigue can be alleviated through appropriate medication management and monitoring of side effects, supplementation with B vitamins, improving sleep quality, and introducing physical activity.
It has been shown that only a small proportion of patients achieve the recommended levels of physical activity. [6] As disease activity increases, fatigue, depression, and anxiety tend to rise, making patients less motivated and reluctant to engage in physical activity. Patients reported several barriers that limit their PA, including abdominal and joint pain, an increased need to use the bathroom, nausea, as well as fatigue, exhaustion, and muscle weakness. [7] During flare-ups, patients have difficulty finding the motivation and endurance to maintain physical activity. [8]

3. The beneficial impact of physical activity on the physical condition of patients

3.1. Impact of physical activity on the onset of the disease and risk of flare-ups

Studies suggest a link between PA and the onset of Crohn's disease. Research has shown that physically active women had a 44% lower incidence of CD. [9] It has also been demonstrated

that physical activity can significantly reduce the risk of disease relapse—patients with higher levels of physical activity may experience up to a 32% reduction in the risk of flare-ups. [3] Adopting a healthy lifestyle that includes physical activity is associated with a significant decrease in the risk of moderate and severe disease exacerbations, and it also contributes to a reduction in mortality among patients with Crohn's disease. [10-11]

3.2. Impact of physical activity on the inflammatory processes

Physical activity in the general population has anti-inflammatory effects ; however, studies on the impact of PA on inflammatory processes in Crohn's Disease are inconclusive. [12] Some suggest that regular moderate-intensity physical activity exhibits beneficial immunomodulatory effects, potentially leading to a reduction in pro-inflammatory cytokine levels and an increase in the production of anti-inflammatory cytokines. Research indicates that physical activity may support immune system function by releasing anti-inflammatory cytokines from skeletal muscles and reducing the release of pro-inflammatory cytokines from adipose tissue. Interleukins, including IL-6, are also secreted, which stimulate the secretion of glucagon-like peptides that play a significant role in the regeneration of the damaged intestinal mucosa. [13] However, some of the reviewed studies showed ambiguous effects of physical activity on inflammatory markers and clinical symptoms in patients with IBD. This highlights the need for further research in this area. [14] Studies also show that many patients are overweight or obese. [15] PA leads to beneficial changes in body composition. It reduces adipose tissue, including visceral fat, which is a source of inflammatory mediators, and helps combat obesity, which contributes to metabolic disorders and increases the risk of surgery in the future. [16-17]

3.3. Impact of physical activity on bones and muscles

Patients with CD have higher rates of osteoporosis and osteopenia compared to the general population. Numerous studies indicate a significantly increased risk of fractures in this group. [18] Despite the proven effect of physical activity in preventing bone mass loss in the general population, the number of studies confirming this relationship in patients with Crohn's Disease is limited. The underlying causes of osteoporosis in this patient group are complex and multifactorial. They result from chronic inflammation, weight loss, malabsorption, corticosteroid use, and genetic factors. [19] According to current medical knowledge, physical activity may be an important factor in slowing the progression of osteoporosis in patients with Crohn's Disease , although further research is needed to clearly define the type and intensity of recommended exercises. [7] Sarcopenia and sarcopenic obesity are also conditions associated with CD and are linked to a severe disease course. [20] Physical activity can help increase muscle strength and improve overall fitness. [21] Moderate-intensity physical activity has been shown to increase appetite, which can help limit weight loss and deficiencies in nutrients essential for proper body functioning. [22]

4. The beneficial impact of physical activity on the mental health of patients

Patients with CD have a significantly reduced health-related quality of life (HrQoL). This condition is influenced by disease activity, number of relapses, biological treatment, hospitalizations, and inability to work. [23] Studies indicate that physical activity, including moderate-intensity walking, contributes to improved HrQoL. [24] Crohn's Disease is a chronic illness that greatly limits patients' lives, which is why anxiety and depression are common among them. [25] The stress negatively impacts disease progression and the occurrence of

exacerbations by, among other mechanisms, damaging the intestines through changes in epithelial permeability, increasing inflammation, and disrupting the balance between oxidative and antioxidative mechanisms in the intestinal mucosa. [26] Positive effects of PA such as yoga have been demonstrated in patients with inflammatory bowel disease. [27-28] Among both children and adults studied, yoga proved an effective method to support treatment. It significantly reduced stress, improved mood and overall fitness, thereby reducing symptoms associated with IBD. It also had a positive impact on patients' self-esteem and quality of life. [8] Another challenge faced by patients is chronic fatigue, which is related to disease activity, abdominal pain, diarrhea, and nocturnal bowel movements that disrupt sleep. Patients reporting chronic fatigue also showed lowered mood and increased depressive symptoms. [29] Physical activity may help combat chronic fatigue by increasing muscle strength and improving overall fitness. [21] Research shows that regularly physically active patients reported improvements in sleep quality. [13]

5. Risks for patients with Crohn's disease related to physical activity

Studies show that moderate endurance and strength training are safe for patients with Crohn's Disease who are not in the active flare phase. [8] However, research on healthy populations indicates that extreme physical exertion leads to an increase in inflammatory mediators such as calprotectin. [30] For this reason, physical activity introduced as part of therapy for patients with Crohn's Disease should be individually tailored with great caution. There is a lack of scientific studies that clearly define a safe level of physical activity for these patients. Researchers emphasize the need to develop appropriate physical activity programs that take into account disease symptoms, mental health, age, and the patient's individual preferences regarding the type of activity. [21] Such an approach, combined with education, can effectively improve the patient's quality of life.

6. Recommendations

The analyzed studies do not provide universal recommendations for physical activity that would be suitable for all patients with Crohn's Disease. Preferred activities include walking and swimming, which are generally well tolerated by patients. Introducing new exercises must be individually determined in each case, taking into account the patient's health status, disease activity, and any comorbidities. When creating recommendations, it is also important to consider the patient's preferences, and setting specific goals can be helpful for patients. [31] It is crucial that during follow-up visits, doctors discuss physical activity with their patients. Potential benefits should be explained, patients who need support should be identified, and assistance should be provided to help them find solutions that allow them to recognize potential risks, difficulties, and barriers, enabling them to gain the benefits of physical activity. [32]

7. Conclusions

Physical activity does not replace pharmacotherapy but plays an important supportive role in the treatment of chronic inflammatory bowel diseases. Regular moderate-intensity physical activity provides both mental and physical benefits. It may help prevent flare-ups, prolong remission periods, and reduce inflammation. Physical activity improves overall fitness, supports digestive system function, increases muscle mass, and enhances bone health. It also positively affects patients' mental health, reduces chronic fatigue, and improves quality of life. Physical activity during remission is relatively safe for patients; however, due to limited

research among patients in the active phase of the disease, recommendations for physical activity in this group should be individualized and applied with great caution. Intense exercise should be avoided, and implemented programs should be tailored individually. Due to the lack of clear guidelines, further research is necessary, especially among patients in the active phase of the disease. This will allow assessment of the safety and effectiveness of physical activity interventions.

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Conflict of interest

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