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Review Article

Beyond the Pill: Exercise as a Potential Treatment for Menstrual Migraines

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Abstract

Menstrual migraine (MM) is a prevalent type of headache in women, caused by decreased estrogen levels during the menstruation cycle. It typically occurs two days before menstruation and lasts until the third day of menstrual bleeding. This literature review aims to enhance awareness and understanding of the potential relationship between exercise and menstrual migraines. A literature search was conducted using databases such as PubMed, Scopus, and Google Scholar, focusing on studies that investigate the correlation between exercise and menstrual migraines. Our investigation shows that several treatment regimens are available, including medications and preventive measures. Studies suggest that yoga and high-intensity interval training can be beneficial. We concluded that regular physical activity can help regulate hormone levels and reduce stress, potentially managing menstrual migraines.

Keywords: Menstruation, Menstrual Migraine, Exercise, Headache, Rehabilitation

1. Introduction

Menstrual Migraine (MM), also referred to as Menstrual-related headaches (MRH), is a prevalent form of headache observed in women. Its primary etiology is linked to the decline in estrogen levels during various phases of the menstrual cycle (Moy and Gupta 2022). More than 1 in 5 women with migraine aged 30–34 experience migraine during at least half of their menstrual cycle. A majority of these cases present as menstrual migraine without aura, while a minority may experience migraine with aura during menses (Vetvik et al. 2014).

Accurate diagnosis concerning the menstrual cycle is crucial for the prevention and treatment of this type of headache. MM typically manifests two days before menstruation and can persist until the third day of menstrual bleeding in most cases (Moy and Gupta 2022). Evidence suggests that migraine frequency peaks during the menstrual cycle, particularly in the days just before and after the onset of menstruation (Johannes et al. 1995). The diagnostic criteria for pure menstrual migraine and menstrual-related migraine are well-defined. According to these guidelines, the first day of menstruation is designated as day 1, and the preceding day is considered day -1, with no day 0. Menstrual Migraine can be categorized into two forms depending on type of the symptoms:

I. Pure menstrual migraine (Less than 10% of women report migraine exclusively with menstruation and at no other time of the month) (MacGregor et al. 2004).
   - Attacks, in a menstruating woman meet the criteria for migraine without aura.
   - Attacks occur exclusively on day 1±2 (i.e., days −2 to +3) of menstruation in at least two out of three menstrual cycles and at no other times of the cycle.

II. Menstrual-related migraine (In most women with menstrual attacks, migraine

occurs at other times of the month as well) (MacGregor et al. 1990).

- Attacks in a menstruating woman meet the criteria for migraine without aura.
- Attacks occur on day 1 ±2 (i.e. days −2 to +3) of menstruation in at least two out of three menstrual cycles and also at other times of the cycle (Steiner, MacGregor, and Davies 2007).

The acute treatment of menstrual migraine is the same as for non-menstrual attacks. It includes using a combination of analgesics with or without prokinetic antiemetics, nonsteroidal anti-inflammatory drugs, ergot derivatives, and triptans (Steiner, MacGregor, and Davies 2007). Sumatriptan is likely to be the best choice for managing menstrual migraine, while frovatriptan is a good choice for short-term prophylaxis (Zhang, Qi, and Zhang 2023). For continuous prevention, medications such as antiepileptics, antihypertensives, and antidepressants are typically prescribed for high-frequency migraines (Newman and Yugrakh 2014).

Another treatment option is hormone therapy, primarily using estradiol. Applying transcutaneous estradiol gels during the perimenstrual period has been reported to be effective in preventing MM. When MM is not responding to acute medications, short-term prevention, or when patients have irregular menstrual cycles, continuous prophylaxis can be used.

Beyond pharmacological approaches, engaging in various forms of exercise can also serve as an effective preventive measure against menstrual migraines. Therefore, this review evaluates existing research on the role of exercise in managing menstrual migraines, elucidating potential mechanisms and therapeutic implications.

2. Methods

A literature search was conducted using databases such as PubMed, Scopus, and Google Scholar, focusing on studies that investigate the correlation between exercise and menstrual migraines. Key terms included “exercise,” “physical activity,” “menstrual migraines,” and “headache management.” Relevant studies were critically analyzed for findings related to exercise types, frequency, intensity, and their effects on migraine symptoms.

3. Results & Discussion

Studies indicate that yoga and high-intensity interval training (HIIT) can be beneficial. Research has shown that aerobic exercise can reduce the frequency, intensity, and duration of migraine attacks (Barber and Pace 2020). Additionally, mind-body therapies like acupuncture, biofeedback, and massage may also prevent migraine attacks in some individuals.

There is literature available that shows exercise can trigger migraine episodes in some cases. However, some studies indicate regular exercise may have a prophylactic effect on migraine frequency (Amin et al. 2018). Additionally, it can reduce the frequency, severity, and duration of migraines, leading to a considerable improvement in the quality of life for those affected (Lippi, Mattiuzzi, and Sanchis-Gomar 2018). Apart from aerobics and high-intensity exercises, Zumba exercise has been found to reduce the severity and duration of menstrual pain; therefore, regularly performing Zumba might be a possible therapeutic intervention to reduce or manage menstrual migraine (Samy et al. 2019). Exercise has been proven to be safe and effective for the prophylactic treatment of migraine in patients who either do not benefit from or do not want to take daily medication (Varkey et al. 2011). Sheikh states “Regular exercise and a healthy diet have been shown to reduce overall menstrual symptoms and can help with migraine attacks.” A good, consistent sleep schedule can also be helpful. Limiting coffee and energy drinks, if they cause problems with sleep, is recommended. Furthermore, yoga

and mindfulness can be a helpful tool to help regulate hormones.

Discussing alternative treatments, repetitive cathodal direct current stimulation (rctDCS) over the cortex might be able to decrease the number of attacks in patients with menstrual migraines. This is possibly achieved by modifying cortical excitability (Wickmann et al. 2015).

Exercise can also manage menstrual migraines by reducing stress and regulating hormones. Regular physical activity can help regulate hormone levels, including estrogen and progesterone, which play a role in the pathology of menstrual migraines. Additionally, exercise can elevate the level of endorphins, the body's natural pain relievers. Since research is scarce on the effectiveness of exercise in managing menstrual migraines, this represents a great area for further study.

In summary, the literature indicates several potential mechanisms through which exercise may alleviate menstrual migraines. Regular physical activity is associated with reduced stress levels, hormonal regulation, and improved overall physical health, all of which can contribute to a decrease in the frequency and severity of headaches. Moreover, some studies highlight the benefits of specific exercise types, such as aerobic exercises and yoga, in providing relief from migraines. While the evidence supporting the beneficial effects of exercise on menstrual migraines is growing, variations in study design and participant demographics necessitate further research. It is crucial to determine optimal exercise regimens, including duration, intensity, and type of workout to maximize the therapeutic benefits for individuals prone to menstrual migraines.

4. Conclusion

This literature review underscores the potential of exercise as an effective intervention for reducing the incidence and severity of menstrual migraines. Increased awareness and incorporation of regular physical activity into treatment plans could significantly enhance the quality of life for those affected by these debilitating headaches. Future research should focus on establishing clear guidelines and recommendations tailored to individual needs.

Conflict of Interest

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Study Approval

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Consent Forms

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Authors Contributions

Both authors, C and HK, contributed equally to this manuscript.

Data Availability

All the data relevant to this study is with the authors.

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References

Amin, Faisal Mohammad, Stavroula Aristeidou, Carlo Baraldi, Ewa K Czapinska-Ciepiela, Daponte D Ariadni, Davide Di Lenola, Cherilyn Fenech, Konstantinos Kampouris, Giorgos Karagiorgis, and Mark Braschinsky. 2018. "The association between migraine and physical exercise." *The journal of headache and pain* no. 19:1-9.

Barber, Mark, and Anna Pace. 2020. "Exercise and migraine prevention: a review of the literature." *Current pain and headache reports* no. 24 (8):1-7.

Johannes, CB, MS Linet, WF Stewart, DD Celentano, RB Lipton, and M Szklo. 1995. "Relationship of headache to phase of the menstrual cycle among young women: a daily diary study." *Neurology* no. 45 (6):1076-1082.

Lippi, Giuseppe, Camilla Mattiuzzi, and Fabian Sanchis-Gomar. 2018. "Physical exercise and migraine: for or against?" *Annals of Translational Medicine* no. 6 (10).

MacGregor, EA, J Brandes, A Eikermann, and R Giammarco. 2004. "Impact of migraine on patients and their families: the Migraine and Zolmitriptan Evaluation (MAZE) survey–Phase III." *Current medical research and opinion* no. 20 (7):1143-1150.

MacGregor, EA, HVRC Chia, RC Vohrah, and M Wilkinson. 1990. "Migraine and menstruation: a pilot study." *Cephalalgia* no. 10 (6):305-310.

Moy, Gregory, and Vikas Gupta. 2022. "Menstrual-Related Headache." In *StatPearls [Internet]*. StatPearls Publishing.

Newman, LC, and MS Yugrakh. 2014. "Menstrual migraine: treatment options." *Neurological Sciences* no. 35:57-60.

Samy, Ahmed, Sherif Sameh Zaki, Ahmed A Metwally, Doaa Salah Eldin Mahmoud, Iman M Elzahaby, Ahmed Hussein Amin, Ahmed Ibrahim Eissa, Ahmed M Abbas, Amr Hassan Hussein, and Bassem Talaat. 2019. "The effect of Zumba exercise on reducing menstrual pain in young women with primary dysmenorrhea: a randomized controlled trial." *Journal of Pediatric and adolescent gynecology* no. 32 (5):541-545.

Steiner, TJ, EA MacGregor, and PTG Davies. 2007. "Guidelines for all healthcare professionals in the diagnosis and management of migraine, tension-type, cluster and medication overuse headache." *British Association for the Study of Headache* no. 2007:1-52.

Varkey, Emma, Åsa Cider, Jane Carlsson, and Mattias Linde. 2011. "Exercise as migraine prophylaxis: a randomized study using relaxation and topiramate as controls." *Cephalalgia* no. 31 (14):1428-1438.

Vetvik, Kjersti G, E Anne MacGregor, Christofer Lundqvist, and Michael B Russell. 2014. "Prevalence of menstrual migraine: a population-based study." *Cephalalgia* no. 34 (4):280-288.

Wickmann, Franziska, Caspar Stephani, Dirk Czesnik, Florian Klinker, Charles Timäus, Leila Chaieb, Walter Paulus, and Andrea Antal. 2015. "Prophylactic treatment in menstrual migraine: A proof-of-concept study." *Journal of the neurological sciences* no. 354 (1-2):103-109.

Zhang, Han, Jian-Zhi Qi, and Zhi-Hua Zhang. 2023. "Comparative efficacy of different treatments for menstrual migraine: a systematic review and network meta-analysis." *The Journal of Headache and Pain* no. 24 (1):81.