

The role of sports practice in modulating physiological and psychological changes during pregnancy

دور الممارسة الرياضية في تعديل التغيرات الفسيولوجية والنفسية أثناء الحمل

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Abstract:

Pregnancy is considered an emotionally challenging experience filled with challenges related to growth, various changes, and fertility, especially for first-time mothers. The physiological changes that accompany pregnancy, along with hormonal disturbances, turn pregnancy into a psychological state where women face fear and expectations related to motherhood. Additionally, pregnant women may experience various psychological changes during different stages of pregnancy, which can intersect with their daily and social life patterns.

This study aims to understand the role of exercise in modifying the physiological and psychological changes that accompany pregnancy, highlighting its positive impact. It also explores the recommended types of exercise during this period.

Key words : sports Practice; Physiological Changes; Psychological Changes; Pregnancy

المخلص:

يعتبر الحمل أحد التجارب العاطفية المليئة بالتحديات المتعلقة بالنمو والتغيرات المختلفة والخصوبة، خاصة في الحمل الأول للمرأة، حيث أن التغيرات الفيزيولوجية المرافقة للحمل وما يتبعها من اضطرابات هرمونية تجعل من حالة الحمل حدثا نفسيا تواجه فيه المرأة حالة من الخوف والتوقعات التي تتعلق بالأمومة، في حين تتعدد التغيرات النفسية التي قد تعاني منها الحامل في فترات حملها المختلفة وقد تتداخل مع نمط الحياة اليومي والحياة الاجتماعية. تهدف هذه الدراسة إلى إبراز الأثر الإيجابي للممارسة الرياضية في تعديل التغيرات الفيزيولوجية والنفسية المصاحبة للحمل، وكذا التطرق إلى أهم الرياضات المنصوح بها خلال هذه الفترة. الكلمات المفتاحية: الممارسة الرياضية: التغيرات الفيزيولوجية: التغيرات الانفعالية: الحمل.

1. Introduction

Pregnancy is considered an psychological experience filled with challenges related to growth, various changes, and fertility, especially for women during their first pregnancy. The physiological changes accompanying pregnancy, along with the hormonal disruptions that follow, make the state of pregnancy a psychological event in which women face fear and expectations related to motherhood. Furthermore, pregnant women may experience various psychological changes throughout different stages of pregnancy, which can intertwine with their daily lifestyle and social life.

Regardless of religious beliefs, there is a prevailing belief in societies that sports diminish a woman's femininity, harm her body, and affect her internal organs. Additionally, it is commonly accepted that sports pose a significant danger to pregnant women and may result in miscarriage. However, these beliefs lack scientific evidence and contradict it in its entirety, both in general and in detail.

Regardless of the basis or foundation upon which these beliefs or ideas regarding women's engagement in sports are built, there is no doubt about the significant benefits of sports and their positive impact on improving women's health, enhancing their efficiency, and increasing their ability to perform their roles in life and society, reflecting progress and advancement for nations.

Engaging in sports during pregnancy brings several benefits that promote the health of pregnant women and help them enjoy a healthy pregnancy and an easier childbirth. Hence, it is noticeable in our societies that the process of

childbirth is generally easier for women in rural areas and the countryside who are accustomed to physical activity and sports practice compared to their counterparts in cities and urban areas.

2. Theoretical Background

2-1- Sports Practice:

Exercise is an integral part of general education and a field of experimentation aimed at shaping a well-rounded individual in terms of physical, mental, psychological, and social aspects. This is achieved through various forms of physical activity. Sports practice consists of selected physical activities performed for the purpose of benefiting the individual as a result of engaging in these activities. (Mahmoud, & Chatti, 1992, p23).

2-2- The Importance of Women's Engagement in Sports:

Engaging in sports restores the value of the body as a moral and dynamic entity within the framework of the relationship between the physical environment and the human being. It also helps in preserving and enriching factors of effectiveness and ease of movement, promoting relational life, making individual and collective decisions, and acquiring knowledge and understanding of phenomena related to physical activity. Moreover, it prepares individuals for effective management and encourages them to strive for a better moral balance.

Therefore, sports participation is integrated within a framework of implementing a value system that contributes to the effective efforts in developing individual health and independence. (Adel, 1965, p47).

2-3- Sports Practice and the Biological Basis for Women:

From a biological standpoint, the differences between men and women can be attributed to anatomical and morphological variations. The evident disparities are linked to women's connection to pregnancy, child-rearing, and childcare, as well as their menstrual cycle. Consequently, the physical effort exerted by women, including routine physical activities, is limited and repetitive, gradually causing a loss of muscle flexibility, sensitivity, and capacity. This makes women susceptible to various diseases such as diabetes, hypertension, and mental disorders.

Medical science has been successful in controlling most diseases. However, it remains powerless against many diseases, especially those associated with the transition from an active and mobile lifestyle to a sedentary and lazy one. This leads to physical deterioration and an inability to perform essential duties, as it requires a sufficient level of physical fitness. (Abdeladhim, 1978, p142).

Regular and consistent engagement in sports has a positive impact on improving women's health and their ability to endure physical exertion and fulfill their responsibilities in life, considering their anatomical and physiological makeup. Additionally, biological and psychological changes occur, contributing to

achieving a balanced life, personal openness, and the reduction of nervous tension. (Ali, 1980, p58).

2-4- Pregnant Women:

Pregnancy is considered an psychological experience filled with challenges related to growth, various changes, and fertility, especially for women during their first pregnancy. The physiological changes accompanying pregnancy, along with the hormonal disruptions that follow, make the state of pregnancy a psychological event in which women face fear and expectations related to motherhood. Furthermore, pregnant women may experience various psychological changes throughout different stages of pregnancy, which can intertwine with their daily lifestyle and social life. (George, & Ann Marie, 2001, pp 20-21).

2-5- Physiological and Psychological Symptoms During Pregnancy:

The physiological changes that occur in a pregnant woman represent a natural adaptation to better accommodate the developing fetus or expected child. These changes, such as those related to the heart, blood vessels, blood characteristics, metabolism, and respiration, are considered normal adaptations. The body alters its physiological and homeostatic mechanisms (the body's ability to regulate internal balance to maintain its physiological processes) to ensure proper adaptation for the fetus. (Suhair, 1980, p79).

In addition to the physiological changes, pregnant women may also experience various psychological symptoms. These can include mood swings, anxiety,

worries about childbirth and motherhood, changes in body image, sleep disturbances, and hormonal fluctuations that can affect psychological well-being (e.g., increased sensitivity or irritability). It is important to note that these psychological symptoms can vary from woman to woman and may be influenced by individual factors and external circumstances.

2-5-1- Symptoms of the Second Month:

The second month of pregnancy brings about many changes in a woman's body. It is the time when pregnant women may begin to experience most of the common and bothersome symptoms and signs of early pregnancy. These symptoms include nausea, fatigue, insomnia, frequent urination, which are considered indicators of the progressing pregnancy. In fact, a recent study showed that women who experience pregnancy-related symptoms and signs in the eighth week of pregnancy are less likely to have a spontaneous abortion.

2-5-2- Symptoms of the Third Month:

- Physiological Symptoms:

- Nausea with or without vomiting and increased saliva production.
- Frequent urination.
- Fatigue, constant desire for sleep.
- Constipation.
- Heartburn and digestive difficulties.

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- Abdominal bloating and feeling of fullness.
- Increased appetite.
- Headaches sometimes due to hormonal changes.
- Dizziness and occasional fainting.
- The abdomen begins to show at the end of this month.
- Breast fullness and heaviness or tenderness, with darkening of the areola and prominent veins under the breast skin.

- Psychological Symptoms:

- Feeling of imbalance.
- New sense of calmness.
- Anxiety and occasional crying.
- Feeling of joy and high spirits.

2-5-3- Symptoms of the Fourth Month:

- Physiological Symptoms:

- Feeling of tiredness and fatigue.
- Decreased frequency of urination.
- Disappearance of nausea and vomiting.
- Constipation.

- Heartburn and digestive difficulties.
- Abdominal bloating and feeling of fullness.
- Continued increase in breast size with disappearance of swelling and tenderness.
- Occasional dizziness and headaches, especially with rapid head movements.
- Increased sweating and feeling of elevated body temperature.
- Slower bowel function.
- Nasal congestion and ear congestion.
- Mild swelling in the hands and feet, and sometimes the face.
- Feeling of fetal movement at the end of the month.

- Psychological Symptoms:

- Anxiety and tension.
- Feelings of joy.
- Forgetfulness, difficulty concentrating, absent-mindedness.

2-5-4- Symptoms of the Fifth Month:

- Physiological Symptoms:

- Feeling of fetal movement.

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- Lower abdominal pain due to the stretching of the uterus.
- Constipation.
- Heartburn and digestive difficulties, bloating and gas.
- Dizziness and occasional headaches.
- Nasal congestion and ear congestion.
- Open appetite for eating.
- Muscle tension in the legs.

- Psychological Symptoms:

- Acceptance and adaptation to pregnancy.
- This period is characterized by less stress and more stability.
- Continued absent-mindedness.

2-5-5- Symptoms of the Sixth Month:

- Physiological Symptoms:

- Lower abdominal pain due to the stretching of the uterus.
- Constipation.
- Heartburn and digestive difficulties, bloating and gas.
- Nasal congestion and ear congestion.

- Bleeding gums sometimes.
- Muscle contractions in the legs and mild contractions in the uterus.
- Mild swelling in the feet, hands, and sometimes the face.
- Itching on the abdomen.
- Back pain.
- Skin discoloration on the abdomen and face.
- Breast enlargement.
- Uterus height reaches 24 cm.

- Psychological Symptoms:

- Absent-mindedness.
- Weariness and impatience for the remaining period of pregnancy.
- Feeling of discomfort and some anxiety.
- Heightened emotions.

2-5-6- Symptoms of the Seventh Month:

- Physiological Symptoms:

- Lower abdominal pain due to the stretching of the uterus.
- Heartburn and digestive difficulties, bloating and gas.

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- Nasal congestion and ear congestion.
- Gum bleeding.
- Muscle contractions in the legs and mild contractions in the uterus.
- Mild swelling in the feet, hands, and sometimes the face.
- Back pain.
- Difficulty sleeping.
- Difficulty breathing.
- Dropping of the milk: A yellowish fluid that precedes the milk's descent from the breasts.

- Psychological Symptoms:

- Increased emotions and anxiety about motherhood and childbirth, along with absent-mindedness.
- Fatigue and diminishing patience with pregnancy.
- Feelings of discomfort and some anxiety.
- Excessive psychological responses.

2-5-7- Symptoms of the Eighth Month:

- Physiological Symptoms:

- Heartburn and digestive difficulties, bloating and gas.

- Nasal congestion and ear congestion.
- Gum bleeding.
- Muscle contractions in the legs.
- Swelling and mild bloating in the hands, feet, and face.
- Uterine contractions.
- Back pain.
- Difficulty sleeping.
- Difficulty taking deep breaths and increased heart rate.
- Itching on the abdomen.
- Descent of the milk from the breasts.
- Pelvic pain and back pain, and increased vaginal discharge.

- Psychological Symptoms:

- Impatience and a desire for the remaining period of pregnancy to pass quickly.
- Absent-mindedness and difficulty focusing or remembering.
- Joy and relief that the delivery date is getting closer.

2-5-8- Symptoms of the Ninth Month:

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The symptoms that occur throughout pregnancy may be similar, but these changes may intensify as the due date approaches, including:

- Increase in the size of the uterus.
- Fatigue and tiredness.
- Yellowish fluid leakage from the nipples, which is colostrum that protects the baby from various infections.
- Labor can occur between the 8th and 41st weeks. (Source: www.genycologuenency.com)

2-6- Benefits of Exercise for Pregnant Women:

Exercise during pregnancy has several benefits that contribute to the woman's health and help her enjoy a healthy and smoother pregnancy and delivery. It is observed in our societies that the birthing process is generally easier for women in rural areas and countryside who are accustomed to physical activity compared to their counterparts in urban areas.

Here are some positive aspects of exercise for pregnant women:

- a. Reduces pregnancy-related symptoms and discomforts:** Exercise helps in reducing symptoms and disorders that bother women during pregnancy, such as nausea, vomiting, leg muscle cramps, back pain, ligament pain in the lower back area, constipation, digestive disorders, and varicose veins.

- b. **Strengthens the thigh area and abdominal muscles:** Strength exercises targeting the thigh area and abdominal muscles assist in the process of pushing the baby out during delivery.
- c. **Enhances overall strength:** Strong muscles in the upper and lower extremities help the woman lift and carry her baby and their belongings after delivery (e.g., carrying a diaper bag).
- d. **Flexibility exercises:** Flexibility exercises are crucial for a healthy pregnancy as they reduce back pain, muscle tension, and help maintain the body shape and posture. They also aid in different birthing positions.
- e. **Reduces the likelihood of cesarean delivery:** The impact of exercise on reducing the likelihood of cesarean delivery is evident from the results of an actual experiment involving approximately 845 pregnant women divided into three groups:
 - **Group 1:** Engaged in regular and structured exercise, resulting in a 6.7% rate of cesarean delivery.
 - **Group 2:** Engaged in regular but unstructured exercise, resulting in a 19% rate of cesarean delivery.
 - **Group 3:** Did not exercise but did not face significant pressures, resulting in a 28.1% rate of cesarean delivery. (Marry, 2006, p41).

In addition to the mentioned benefits, exercise also helps pregnant women to:

- Carry out their responsibilities without feeling psychological pressure.

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- Regulate mood.
- Cope with stress, anxiety, depression, and achieve mental clarity.
- Increase appetite.

Furthermore, exercise facilitates the labor process in terms of duration and accompanying disorders. Studies have shown that the average duration of labor is 27 minutes for physically active women, compared to 57 minutes for sedentary women. (Majida, 2009, p57).

2-7- Recommended sports for pregnant women:

- Walking:** This simple physical activity is accessible to everyone. Even pregnant women who are not accustomed to exercising can engage in walking due to its ease and associated health benefits. Walking can be practiced throughout all stages of pregnancy.
- Swimming:** This sport is characterized by its relaxing nature, providing comfort and relaxation for pregnant women. Swimming increases the efficiency of the heart and respiratory system and does not pose joint problems. Pregnant women are often advised to swim on their backs.
- Gentle gymnastics:** Gymnastics should be practiced with extreme caution and under the supervision of specialists. It is recommended to engage in gentle gymnastics during pregnancy. The duration should not exceed 20 to 30 minutes, two to three times a week. Warm-up exercises before each session are

important, and violent stretching should be avoided as ligaments are more relaxed during pregnancy. (Majida, 2009, p94).

2-8- Prohibited sports for pregnant women:

On the other hand, there are sports that are strictly prohibited for pregnant women as they pose a risk to their health, especially after the fourth month of pregnancy. The reasons for prohibiting these sports include:

- a. Sports that may cause the pregnant woman to fall, such as group sports, as the change in the center of gravity can lead to loss of balance and falls.
- b. Sports that may result in collisions or abdominal injuries, such as certain group sports and defensive sports.
- c. Sports that involve running and jumping, which can cause joint twisting. (Chiha, 2013, p17).

2-9- Necessary precautions for exercising during pregnancy:

- Avoiding sudden and vigorous movements.
- Avoiding exercises that rely on joint movements, as ligaments are more relaxed during pregnancy.
- Taking important rest periods between exercise sessions to prevent fatigue.
- After the 20th week of pregnancy, avoiding exercises that involve lying on the back to ensure proper blood flow to the fetus.

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- Following a balanced diet and paying attention to potassium intake, as muscle cramps may increase during pregnancy. It is important to consume vegetables, fruits, meat..
- Drinking an adequate amount of water is crucial for pregnant women engaging in exercise, as it helps prevent dehydration. This is even more important during hot weather.
- Pregnant women are advised to wear appropriate sports shoes and clothing during exercise. However, they should take necessary precautions and measures to avoid engaging in improper practices that may have serious consequences.
- Avoid relying on heart rate monitoring during exercise, as heart rate can significantly vary during pregnancy. It is important to immediately stop exercising if experiencing chest pain, joint pain, abdominal pain, dizziness, difficulty breathing, vaginal bleeding, difficulty walking, or uterine contractions. (Marry, 2006, p183).

2-10- Reasons and indicators for discontinuing exercise during pregnancy:

- Having a history of preterm labor or experiencing threatened miscarriage.
- Suffering from severe iron deficiency anemia.
- Having high blood pressure or pregnancy-induced hypertension.
- Having excessive weight gain or severe underweight.
- Having any joint or muscle problems.
- Having any heart or lung issues.

- Carrying twins.
- Being diagnosed with diabetes. (Chiha, 2013, p19).

3. Conclusions

The study suggests that exercise interventions in pregnant women have the potential to reduce physiological and psychological changes that occur during pregnancy.

Pregnancy leads to various physiological changes in a woman's body, such as weight gain, changes in hormone levels, increased blood volume, and alterations in cardiovascular and respiratory function. Regular exercise during pregnancy can help manage these changes by promoting cardiovascular fitness, maintaining a healthy weight, improving blood circulation, and enhancing overall physical strength and endurance.

Exercise has been found to be beneficial in reducing common pregnancy discomforts such as nausea, back pain, muscle cramps, constipation, and varicose veins. It can also contribute to better management of gestational diabetes and blood pressure levels. By engaging in appropriate exercise routines, pregnant women can optimize their physical well-being and adapt more effectively to the changes occurring in their bodies.

Pregnancy can bring about psychological changes due to hormonal fluctuations, physical discomforts, and the anticipation of becoming a parent. These changes may include mood swings, increased stress levels, anxiety, and depression. Regular exercise has been shown to have a positive impact on mental health and well-being.

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Exercise releases endorphins, which are natural mood-enhancing chemicals in the brain, leading to a reduction in stress, anxiety, and depressive symptoms. It can help pregnant women improve their self-esteem, body image, and overall psychological outlook. Engaging in physical activity also provides a sense of empowerment, control, and accomplishment, which can contribute to a more positive pregnancy experience.

Based on the findings of the study, it is recommended to promote exercise as an important way to improve the health of pregnant women. Healthcare professionals should provide guidance and support in developing safe and appropriate exercise routines tailored to individual needs and preferences.

Exercise programs for pregnant women should take into account factors such as the stage of pregnancy, overall health, previous exercise experience, and any specific medical conditions or complications. It is essential to consult with healthcare providers or exercise specialists who can provide guidance on suitable exercises, intensity levels, duration, and any necessary modifications or precautions.

Encouraging pregnant women to engage in regular physical activity can have numerous benefits, including improved cardiovascular fitness, better weight management, enhanced mood and mental well-being, increased energy levels, and improved overall quality of life during pregnancy. However, it is crucial to emphasize the importance of seeking medical advice and following proper

guidelines to ensure safety and optimize the benefits of exercise for pregnant women.

In conclusion, the study suggests that exercise interventions in pregnant women can play a significant role in reducing physiological and psychological changes during pregnancy. By promoting exercise as an important aspect of prenatal care.

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