PHYSICAL ACTIVITY DURING PREGNANCY

AKTYWNOŚĆ FIZYCZNA PODCZAS CIĄŻY

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ABSTRACT

Physical activity should be a permanent part of everyone's daily routine. Pregnancy seems to be an ideal time to reflect on one's lifestyle and a great opportunity to start working out. Regular exercising while being pregnant not only prepares a woman for labour, but also increases the functional efficiency of her body, improves general physical fitness and positively affects her well-being.

Physical activity during pregnancy is still an open topic, which divides professionals from various countries. The American College of Obstetricians and Gynecologists (ACOG) and the Center for Disease Control and Prevention (CDC) promote physical exercise during pregnancy, while the Polish Gynecological Society (PTG) does not recommend it.

Doubts on this subject could be dispelled by the position of the World Health Organization (WHO), but so far WHO has not made a clear stance on undertaking physical activity by pregnant women.

This article presents both the advantages of undertaking physical activity during pregnancy and contraindications to doing so. It presents recommendations regarding undertaking physical activity in successive trimesters and information on abdominal muscle training during pregnancy.

The aim of the study is to increase the awareness of women to the topic on physical activity during pregnancy, as well as informing them of the rules of its taking and continuing.

KEYWORDS: physical activity, pregnancy, exercise, healthy lifestyle.

STRESZCZENIE

Aktywność fizyczna powinna stanowić stałą część dnia każdego człowieka. Ciąża wydaje się być idealnym momentem skłaniającym do refleksji oraz być doskonałą okazją, aby rozpocząć ćwiczenia. Regularne ćwiczenia w czasie ciąży nie tylko stanowią przygotowanie do porodu, ale także zwiększają wydolność czynnościową organizmu ciężarnej, poprawiają sprawność ogólną oraz prowadzą do poprawy samopoczucia.

Aktywność fizyczna w czasie ciąży wciąż pozostaje tematem otwartym, dzielącym specjalistów z różnych krajów. Amerykańskie Towarzystwo Położników i Ginekologów (ACOG) oraz Centrum Prewencji i Kontroli Chorób (CDC) promują aktywność fizyczną w czasie ciąży, podczas gdy Polskie Towarzystwo Ginekologiczne (PTG) w swych zaleceniach podkreśla, iż aktywność fizyczna jest niewskazana.

Wątpliwości w tym temacie rozwiałoby stanowisko Światowej Organizacji Zdrowia (WHO), jednak jak na razie Organizacja ta nie zajęła jednoznacznego stanowiska w sprawie podejmowania aktywności fizycznej przez kobiety w ciąży.

Artykuł przedstawia zalety podejmowania aktywności fizycznej podczas ciąży, jak również przeciwwskazania do jej podejmowania. W artykule przedstawiono zalecenia dotyczące podejmowanej aktywności fizycznej w czasie ciąży z podziałem na kolejne trymestry jej trwania oraz informacje na temat treningu mięśni brzucha podczas ciąży.

Celem pracy jest zwiększenie wiedzy kobiet na temat aktywności fizycznej w czasie ciąży, a także poinformowanie o zasadach jej podejmowania i kontynuowania.

SŁOWA KLUCZOWE: aktywność fizyczna, ciąża, ćwiczenia, zdrowy tryb życia.

Introduction

Physical activity is one of the basic elements of a healthy lifestyle and should be a constant part of every person's daily routine. It is very important to make sure that the time spent on physical exercise does not involve taking care of personal or business matters, but is devoted solely to resting and relaxation.

Physical activity is defined as any bodily movement performed by skeletal muscles that results in increased energy expenditure. It should be understood not only as a particular sport discipline, such as yoga, football or swimming. Physical activity includes primarily the activities performed on a daily basis, i.e. walking, cleaning, cooking, dishwashing and working.

Pregnancy may seem like the perfect time to sit or lie down and relax. The feeling of fatigue and additional pregnancy-related complaints tend to be seen as a medical condition or a pathology. Some people perceive a pregnant woman as not fully functional or even limited in a way. What is worse, at some point even

women themselves start believing in this as they listen to family and friends' opinions or read posts on online forums. Nothing could be further from the truth. Pregnancy does not have to stop women from being active. Actually, it can be a good time to reflect and a great opportunity to start exercising and change bad lifestyle habits. As a result, the feeling of fatigue and discomfort may disappear or the symptoms may become less intense and less frequent.

Positions of various global organizations regarding physical activity during pregnancy

The American College of Obstetricians and Gynecologists (ACOG) published recommendations on physical activity during pregnancy already in 2002. Although these recommendations are still being updated and have been confirmed by the Center for Disease Prevention and Control (CDC), they differ, for instance, from recommendations of the Polish Gynecological Society (PTG) on antenatal care in normal pregnancy published in 2005. Many organizations around the world, such as Sports Medicine Australia (SMA), Physical Activity Australia (PAA) or the Bluearth Foundation, hold similar views on physical activity during pregnancy to those of the American College of Obstetricians and Gynecologists and the Center for Disease Control and Prevention [1, 2].

The recommendations of the Polish Gynecological Society clearly state that the level of physical activity should be decreased during pregnancy and that undertaking or increasing physical activity at that time is contraindicated [2]. However, the American College of Obstetricians and Gynecologists advises that pregnant women should slowly and gradually start engaging in physical activity, and those who were very active prior to pregnancy should continue exercising after consultation with a specialist and on condition that their weight control is maintained [3].

Although to date the World Health Organization (WHO) has not issued recommendations on physical activity during pregnancy or on discrepancies in the recommendations published by various organizations, such as ACOG or PTG, more and more specialists address this subject and conduct research, suggesting that pregnant women not only can but should exercise regularly. While physical activity is recommended to women by an increasing number of physicians, specifying the types of exercise that are safe and allowed during pregnancy remains problematic.

As recommended by the American College of Obstetricians and Gynecologists, women with uncomplicated pregnancies may take up or continue doing most types of exercise. This does not increase the risk of miscarriage, low birth weight or premature delivery. However, the exercise regimen should be discussed with a physician or another healthcare provider, i.e. a midwife or a physiotherapist [3]. On the other hand, recommendations by the Polish Gynecological Society emphasize that physical activity during pregnancy increases the risk of premature delivery and complications, such as dehydration, abnormal uterine and placental blood flow, fetal growth disorders, excessive fatigue, fainting, and others [2].

The latest studies suggest that pregnant women should be physically active. According to recommendations by the Physical Activity Resource Center (PARC), pregnant women should not give up on exercising. It is stressed that if prior to pregnancy a woman was physically active at least three times a week for 30 minutes, and her pregnancy is uncomplicated, she may remain physically active also when pregnant. For women who were not physically active prior to pregnancy, the best time to start exercising is the beginning of the second trimester. This period is characterized by reduced risk of pregnancy problems [4].

Changes occurring in the body during pregnancy

The body of a pregnant woman undergoes changes (anatomical and functional). They mainly occur in the cardiovascular, respiratory, musculoskeletal, reproductive, urinary, digestive, nervous, endocrine and immune systems. Pregnancy causes changes in energy requirements, metabolism and calorie storage capacity [5]. Common pregnancy-related complaints include: back pain, fatigue, insomnia, nausea, vomiting, heartburn, edema, varicose veins and frequent urination [6].

Advantages of undertaking physical activity during pregnancy

Regular exercising prepares the body of a pregnant woman for labour, increases her functional capacity, improves her overall fitness, enhances well-being and boosts self-esteem. In addition, physical activity during pregnancy alleviates pregnancy-related symptoms, reduces low back pain, increases joint mobility, improves circulatory function (strengthening the heart and blood vessels), and reduces the risk of gestational diabetes, hypertension and preeclampsia. Regular physical exercises promote healthy weight gain during pregnancy, help to lose weight after childbirth, and lead to a rapid return to a state of general fitness in the postpartum period [3, 5, 7, 8].

Recommendations on undertaking physical activity during pregnancy

The recommendations by the American College of Obstetricians and Gynecologists define precautions that pregnant women should follow when exercising. According to the guidelines, plenty of water should be drunk during and after exercising in order to prevent dehydration. Workout clothing should be comfortable and airy, and the sports bra should be well-fitted so as to protect the breasts [9]. Both the American College of Obstetricians and Gynecologists and the Physical Activity Resource Center stress that physical activity is contraindicated during fever, in overheated rooms and on hot days. Too high body temperature, especially above 38°C in the first trimester of pregnancy, may lead to miscarriage by inducing contractions of the uterus. According to the American College of Obstetricians and Gynecologists, animal studies have shown that a 1.5°C rise in the temperature of the mother's body causes severe birth defects in fetuses. Human studies have shown that hyperthermia above 39°C in the first two months of pregnancy may have a teratogenic effect [9, 10].

In the second and third trimesters of pregnancy, a woman should reduce the amount of exercise done in the standing or the supine position. Exercise performed in these positions may cause the aortocaval compression syndrome, also known as the inferior vena cava syndrome. The inferior vena cava is formed by-joining common iliac veins and runs on the right side of the body. During pregnancy the uterus also becomes physiologically slightly shifted to the right and as it expands, it initially compresses large blood vessels, half-way through the pregnancy the aorta and later the inferior vena cava [11]. The compression of this vessel may lead to shock symptoms (pallor, dyspnoea, dizziness, sweating), reduction of venous blood flow to the heart, reduction of cardiac output and intrauterine hypoxia [10]. The best positions for exercising during pregnancy are four point kneeling, the left lateral position and the seated position.

The Center for Disease Control and Prevention recommends that pregnant women should spend at least 150 minutes per week on moderate aerobic exercises so as to benefit from physical activity during pregnancy. Examples include fast marching, gardening, swimming and other exercises that involve large parts of the muscles and increase the heart rate. Women who were not physically active prior to pregnancy should slowly and gradually increase both the frequency and intensity of exercise. Women who engaged in physical activity prior to pregnancy for pleasure or professionally might continue the training after consultation with a specialist obstetrician [1].

In the first trimester, low intensity exercises are recommended. Women are advised to practice breathing, relaxation and do exercises to correct their body posture. High intensity and strength training should be avoided during the first trimester of pregnancy. Exercise positions are not relevant at this time. They can be done while standing, sitting or lying, on either side or on the back. In the second trimester, it is recommended to do exercises that improve flexibility and mobility of hip joints and strengthen pelvic floor muscles. Both weight and strength training, as well as high intensity exercises are allowed. One should avoid exercises done in the supine position, jumps and violent movements, as well as exercises which may result in intrauterine hypoxia or injury. The intensity, frequency and type of exercises performed in the third trimester of pregnancy should be adjusted to the woman's abilities. At this stage, it is important to do exercises in the most relaxing positions and to breathe properly throughout. A common complaint occurring in the third trimester of pregnancy is back pain. Proper exercises can reduce tension in the back and relieve back pain. It is equally important to maintain the right position – seated position on a ball or standing on all fours. Examples of such exercises include cat stretch, hip circles, tilting hips forward and back, and lifting one or two limbs in the four point kneeling position [12].

The American College of Obstetricians and Gynecologists stresses that pregnant women should avoid sports that increase the risk of falling, contact sports with a potential for abdominal injury and sports that require breath holding, e.g. diving. Exercises that pregnant women should avoid include climbing and sports practiced at altitudes exceeding 2,500 m above the sea level, which may result in altitude sickness [9].

Training abdominal muscles during pregnancy

Much controversy is still associated with strength training and exercising abdominal muscles during pregnancy. Dr. Cooker Perkins and Hannah Dewalt believe that uncomplicated pregnancy is not a contraindication to CrossFit training, and both stress that the body adjusts to the stimuli it is exposed to. In their publication, they compared training plans of two women who volunteered to continue their workouts during pregnancy. One did CrossFit workouts while the other performed a standardized workout for pregnant women. The workouts differed in duration, intensity and type of exercise. The woman who continued CrossFit did 10-minute high intensity workouts during which she performed 255 repetitions for muscle strength, power and endurance. The other woman did 15-minute workout sessions of moder-

ate intensity during which she performed 80 repetitions for muscle strength. Both women gave birth in the 40th and 41st week of their pregnancies, respectively. Both babies had normal birth weight. Dr. Cooker Perkins and Hannah Dewalt recommend increasing awareness and the sense of body during pregnancy, and point out that although the results of their study are encouraging, they are insufficient to promote this type of training in all pregnant women [13].

Weight gain during pregnancy and weakening of muscles resulting from limited physical activity are a huge problem among pregnant women. That is why it is vital for them to start or continue physical exercise during pregnancy, especially strength training which reduces the complaints related to the musculoskeletal system and strengthens muscles. It is believed that strength training during pregnancy is safe for women who regularly did it prior to becoming pregnant. However, trying out new strength exercises which were not practiced prior to pregnancy, isometric exercises and resistance exercises performed in the supine position should be avoided. When increasing weights during workouts, a pregnant woman should observe her body's reactions. Towards the end of pregnancy, weights should be reduced so that the woman does not feel pain or fatigue. What is crucial for pregnant women, is maintaining the proper strength of the muscles of the limbs, the abdomen and the lower back. For instance, a woman should become strong enough to be able to raise her newborn baby after giving birth [13].

The effects of abdominal muscle training are still unknown. None of the organizations promoting physical activity during pregnancy have taken a stance on this issue. The proponents believe that these exercises prevent both the overstretching of abdominal wall muscles and diastasis recti. An additional argument for is the fact that after giving birth women get their pre-pregnancy bodies back much faster [13]. The opponents, on the other hand, believe that working out to strengthen straight abdominal muscles may cause premature uterine contractions by increasing the pressure in the abdominal cavity and by compressing the uterus. That is because the so called "crunches" lead to the occurrence of the Valsalva phenomenon. In addition, it is believed that strengthening of abdominal muscles during pregnancy does not prevent them from stretching, and may actually contribute to abdominal separation [14]. It is worth emphasizing that most exercises for abdominal muscles, i.e. "crunches", are performed in the supine position, which is not recommended during pregnancy.

Contraindications for physical activity during pregnancy

The American College of Obstetricians and Gynecologists has issued contraindications for exercising during pregnancy. The absolute contraindications include severe heart disease, restrictive lung disease, pregnancy-induced hypertension, incompetent cervix or cerclage, placenta previa after 26 weeks of gestation, persistent second- or third- trimester bleeding, the ruptured amniotic sac and the risk of premature birth. Relative contraindications include severe anemia, arrhythmia, obesity, underweight, multiple pregnancy, chronic bronchitis, intrauterine growth restriction, poorly controlled hypertension, preeclampsia, severe gestosis, orthopedic limitations and poorly controlled thyroid disease, poorly controlled type I diabetes and seizure disorder. Relative contraindications also included nicotine addiction and sedentary lifestyle [9].

Summary

When engaging in physical activity during pregnancy, women should keep in mind that in the event of disturbing symptoms, exercise should be stopped and an appointment with a gynecologist should be made. Unusual symptoms that may occur during exercise include malaise, fatigue, abdominal pain, headache and dizziness, fainting, chest pain and shortness of breath, vaginal bleeding, calf pain and swelling, muscle aches, weaker fetal movements, uterine contractions and amniotic fluid leakage [9, 15].

Pregnant women seeking answers to questions regarding pregnancy, childbirth and the postpartum period, tend to look for information online. Research conducted in 2003 showed that 56% of women learn about pregnancy and health behaviors during pregnancy from the Internet. Studies conducted a decade later showed that as many as 71% of pregnant women got information about pregnancy from the Internet [16, 17]. In the 21st century, the Internet is not only a rich source of knowledge, but also a great threat. There are many websites devoted both to general and specialist gynecological and obstetric issues, which are authored by doctors, midwives, nurses, physiotherapists and other specialists. Unfortunately, alongside these sites, one can find many guides, advertisements, videos and numerous online forums where messages and comments are posted by people with insufficient medical knowledge.

Nowadays, more and more people take care of their appearance and aspire to achieve the perfect body through various diets and supplements, by practicing sports or undergoing cosmetic treatments or even surgery procedures. Pregnant women also want to look as

perfect as models from the covers of mother magazines prior to and after childbirth. In order to reach their goal, women risk their own and their baby's health by restricting their diets and by doing grueling workouts found on Internet websites. Some women use the help of professionals, but, according to research, the majority of pregnant women use free and easy-to-access sources, such as the Internet.

A significant shortcoming of the Internet is the lack of control over what is published and by whom. Hence the great challenge for professionals to try and help their patients and clients by providing them with information based on the conducted research and according to the current medical knowledge.

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