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Typology of recommended exercise methods in the prepartum period

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Abstract. This paper was developed in order to highlight the main methods and means of implementing physical exercise in the daily life of women in the prepartum period. The prepartum period can be a stage characterized by significant changes for the body of any woman both physically and mentally. All these changes are caused by hormonal fluctuations, the growth and development of the embryo and the utero-placental system and the needs of the whole body to prepare for a future birth. At present, the field of sports science includes a multitude of means and methods of implementing physical exercise in the daily routine of any category of people, including women in the gestational period. Precisely this multitude of methods can generate a state of confusion among specialists in physical education and sports who come into contact with this category of people and who intend to implement a physical exercise program in the prepartum period in order to improve the symptoms felt during pregnancy. In this article we want to highlight the main methods and means by which exercise can be practiced by pregnant women in a safe way for both them and the fetus so that the whole process can facilitate the improvement of the quality.

1. Introduction

Many of the scientific studies that have looked at the effects of exercise during pregnancy have addressed a number of common problems in pregnant women, such as back pain, pelvic pain, depression during pregnancy or postpartum, weight gain during pregnancy, and weight gain, diabetes during pregnancy and insulin resistance, symptoms of urinary incontinence, cardiovascular fitness, and the impact of exercise on lifestyle and perception of health.

2. The effects of exercise

2.1. *Effects on musculoskeletal discomfort*

A study of the South African population shows that a 10-week exercise program reduces the intensity of back pain and increases functional capacity during pregnancy. Cochrane also argues that specially adapted strengthening exercises, lean pelvic floor exercise programs, physiotherapy sessions and water gymnastics have a beneficial effect, but the effects are small compared to the standard of prenatal care.

Significant in terms of the link between exercise and combating health problems is Stafne's study, which found no cause for worsening lumbopelvic pain in pregnant women at 36 weeks compared to 12 weeks of aerobic and strength exercise. which were subjected to the investigated subjects.

The study also showed that active women were able to better manage the physical changes that occurred during pregnancy, and musculoskeletal pain can be alleviated by physical activity in some women who had mild pelvic and lumbar discomfort.

2.2. Effects on obesity, diabetes and hypertension

Obesity and obesity associated with other comorbidities are major health problems worldwide, including in pregnant women.

Excess weight gained during the prepartum period, especially its maintenance and after birth is a factor that favors the risk of obesity, diabetes, hypertension and metabolic syndrome.

The fact that physical exercise is a means of preventing the accumulation of weight gain is already unanimously recognized by specialists in physical education and sports and in order for this means to achieve its goal it is necessary to follow the following recommendations:

1. The implementation of the physical exercise should be done only following the recommendations of the attending physician of each subject and following a thorough clinical examination.
2. Exercise during the gestation period should be performed under the supervision or at least under the guidance of a specialist.
3. In addition to the implementation of a physical exercise program, it is also recommended to adopt a lifestyle that favors an optimal gestational path and that includes a balanced diet and sufficient rest.

2.3. Effects on prepartum and postpartum depression

About 10% of women suffer from depression in the prepartum and postpartum period, the causes of which are usually stressful daily events, marital problems, lack of emotional support, low income, lack of education about symptoms and pregnancy, etc.

Remedies to prevent depression include psychotherapy, antidepressants, hormonal treatments, nutritional advice, exercise, acupuncture, and massage. According to a 2009 publication, exercise reduces depressive symptoms to the same extent as traditional methods such as psychotherapy and pharmacological treatment.

The benefits of exercise are significant compared to pharmacological treatments, the most important being that they have no side effects, can be easily implemented in the daily routine and can benefit from their positive effects most women during pregnancy.

2.4. Effects on stress urinary incontinence

Another health problem commonly encountered in pregnant women and addressed in three studies is stress urinary incontinence, which occurs against the background of anatomical changes caused by pregnancy and birth trauma.

Previous studies have shown that pelvic floor toning exercises have been effective in relieving urinary incontinence provided that they are performed from the gestational period so that they can have significant effects during both the prepartum and postpartum period.

Specific exercises performed regularly under the guidance of a specialist have been shown to be effective in relieving urinary incontinence, and the best way to prevent this condition during pregnancy is to get prepartum women to introduce such a program. exercise in their weekly routine.

2.5. Fetal effects

The most relevant risk to the fetus during exercise is related to the decrease in blood flow to the fetus and its preferential redirection to the groups of edges involved in the exercise. However, it has been shown that the uteroplacental system can compensate for these transient changes without risk even in women who have not had significant physical activity prior to pregnancy.

Studies to date have shown no negative results in overweight or obese pregnant women who have exercised at a low to moderate intensity, once a week, under supervision or who have received counseling for exercise at home. In addition, newborns of obese or overweight women were at increased risk of developing obesity.

Also, the mother's nutrition and / or physical activity can induce beneficial fetal physiological changes, which are materialized by favorable adaptations to the ectopic environment, later avoiding the appearance of obesity.

3. The typology of physical exercises that can be practiced in the prepartum and postpartum period

3.1. Short classification

3.1.1. Exercises that involve large groups of muscles

One of the priority recommendations in implementing physical activity in the daily routine of pregnant women is to practice physical exercises that involve, activate and interconnect as many large muscle groups as possible.

3.1.2. Aerobic exercises

Breathing plays a very important role in aerobic exercise as well as in the management of uterine contractions during pregnancy. The pregnant woman must breathe deeply and rhythmically, because active breathing is essential to sustain the effort. Most pregnant women need to learn the right breathing techniques to eliminate as much CO₂ - laden air as possible and allow as much oxygen as possible to enter their lungs.

3.1.3. Aquatic gymnastics (Aqua gym or aqua aerobics)

Specialist studies have shown that the practice of this form of movement is safe during pregnancy for both mother and fetus. A training session lasts on average between 30-60 minutes and can consist of group classes or individual trainings.

Regardless of the type of training session, the pace, intensity and volume can be adapted to the particularities of the participants.

3.1.4. Pilates Exercises

Pilates largely avoids high impact, high power output, and heavy muscular and skeletal loading. Pilates largely avoids high impact, high power output, and heavy muscular and skeletal loading. With the evolution of pregnancy, the abdominal and pelvic area are subjected to additional pressure, being forced to support the entire weight of the utero-placental system and the fetus.

3.1.5. Yoga

Prenatal yoga can be an important part of an exercise program for pregnant women, especially because it can promote the release of tension and stress accumulated during pregnancy.

3.1.6. Lamaze method

The purpose of the Lamaze techniques is to develop a woman's confidence in the ability to give birth to a child and to help her manage labor pains through techniques that facilitate childbirth and create a feeling of comfort, methods that consist mainly of breathing techniques, exercise relaxation and taking special positions during labor.

3.2. Intensity of exercises

Depending on the type, duration and intensity of exercise, the impact they have on the cardiovascular system also varies. Assessing the intensity of physical activity can be done by measuring the heart rate during exercise and comparing this value with that of the maximum heart rate. It is recommended that the intensity of the effort be in the range of 60-80% of the value of the maximum heart rate.

Table 1. Quadratic frequency depending on age

Age	<20 years	20-29 years	30-39 years	>40 years
Heart rate recommended	140-150 bpm	135-150 bpm	130-140 bpm	125-140 bpm

3.3. Frequency of exercises

Women who have had a sedentary lifestyle should perform 15-20 minutes of low to moderate intensity exercise 3 times a week and gradually increase to 30 minutes 4 times a week.

In the case of active women, they can maintain a pre-pregnancy training program with a moderate level of intensity, especially in the first trimester of pregnancy.

For performance athletes or women who have practiced intense physical activity prior to pregnancy, the frequency and intensity of exercise will be determined according to the particularities of each subject and the recommendations of the attending physician.

Table 2. - Classification of physical exercises allowed in the prepartum period according to obstetric morpho-physiological criteria

Criteria	Type of exercises	Examples
Anatomical	Depennding of the each muscle group of body	Toning the muscles of the arms, back, lower train
By intensity	Ex. low intensity physical	Selective influenceof the musculoskeletal system
	Ex. medium intensity physical	Ex. physical for toning different muscle groups
By the nature of the muscle contractions	Ex. isometric physisc	Ex. physical for toning the paravertebral muscles
	Ex. isotonic physisc	Ex. dynamic physiscs for toning thr lower train
	Ex. mixed physisc	Ex. physical for pelvic floor
After the age of pregnancy	Trim.I I - learning	Nr. of repetitions for the period
	Trim. II - consolidation	Nr. of repetitions for the period
	Trim. III - training	Nr. of repetitions for the period
By goal	Ex. for general physical training	Ex. for improving the body's circulation and oxygenation
	Ex. for technical physisc	Ex. physical for control and relaxion of diffrent muscle groups
	Ex. for tactical physisc	Ex. for respiratory rate control
By tipe of exercises	Ex. with body weight	Knees, squats
	Ex. with added weights	Ex. with dumbbells and appliances
By tipe of accessiries	Ex. with additional elastic strenght	Ex. with elastic bands
	Ex. with appliances	Chest press
	Ex. with support on various accessories	Fixed staircase, fitball

4. Conclusions

The gestational period is characterized by a sinuous evolution that must be managed with caution without disturbing the physiological rhythm of the development of pregnancy while maintaining a balance both physically and mentally in the body of the woman in the prepartum period.

In the prepartum period, the physiological rhythm of the evolution of the pregnancy is recommended to be as close as possible to the normal rhythm of daily life. Exercising as part of the weekly routine can have a significant positive influence on the health of both mother and fetus.

The implementation of aerobic and anaerobic training programs can promote the maintenance of optimal health in the development of the utero-placental system, improving all metabolic processes that ensure the energy needs of the fetus. The aspects presented are a confirmation of the positive influence of physical exercise during the prepartum period on the body of the pregnant woman and the fetus.

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