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Program of physical activities adapted for the inclusion of pregnant students in the Physical Education class

Programa de actividades físicas adaptadas para la inclusión de estudiantes en estado de gestación, en la clase de Educación Física

Programa de atividades físicas adaptado para inclusão de estudantes gestantes nas aulas de Educação Física

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ABSTRACT

The present research study addressed the issue of the inclusion of pregnant adolescents in Physical Education classes, focused on improving the physical health and well-being of the mother and fetus during pregnancy. The main objective of the work was to propose a program of physical activities adapted for the inclusion of pregnant students in the Physical



Education class, in the "Pichincha" Fiscal Educational Unit. A methodology with a qualitative approach was proposed, scientific observation, interview, survey and documentary review were used as empirical methods that facilitated the identification of the problem in the initial part until the proposal of adapted physical exercises was carried out, in its final stage. It concludes with the application and execution of adapted physical activities, and improvements are obtained in cardiovascular health, strengthening of muscles and joints, control of weight gain, reduction of the risk of pregnancy complications and improvement of well-being. emotional. These results were compared with research by other authors that corroborate that implementing adapted physical activities contributes to improving the health of both the mother and the fetus.

Keywords: adaptation of programs, adapted physical exercises, teenage pregnancy.

RESUMEN

El presente estudio investigativo abordó el tema de la inclusión de las gestantes adolescentes en las clases de Educación Física, enfocado al mejoramiento de la salud física y el bienestar de la madre y el feto durante el embarazo. El objetivo principal del trabajo fue proponer un programa de actividades físicas adaptadas para la inclusión de estudiantes en estado de gestación en la clase de Educación Física, en la Unidad educativa fiscal "Pichincha". Se planteó una metodología con enfoque cualitativo, se utilizaron como métodos empíricos la observación científica, la entrevista, la encuesta y la revisión documental que facilitaron la identificación del problema en la parte inicial hasta la realización de la propuesta de ejercicios físicos adaptados, en su etapa final. Se concluye con la aplicación y ejecución de actividades físicas adaptadas, y se obtienen mejoras en la salud cardiovascular, el fortalecimiento de los músculos y las articulaciones, el control del aumento de peso, la reducción del riesgo de complicaciones del embarazo y la mejora del bienestar emocional. Estos resultados fueron comparados con investigaciones de otros autores que corroboran que implementar actividades físicas adaptadas contribuye al mejoramiento de la salud, tanto de la madre como del feto.



Palabras clave: adecuación de programas, ejercicios físicos adaptados, embarazo adolescente.

RESUMO

A presente pesquisa abordou a questão da inclusão de adolescentes grávidas nas aulas de Educação Física, com foco na melhoria da saúde física e do bem-estar da mãe e do feto durante a gravidez. O objetivo principal do trabalho foi propor um programa de atividades físicas adaptado para a inclusão de estudantes grávidas nas aulas de Educação Física, na unidade educacional fiscal “Pichincha”. Foi proposta uma metodologia com abordagem qualitativa, foram utilizados observação científica, entrevista, levantamento e revisão documental como métodos empíricos que facilitaram a identificação do problema na parte inicial até a realização da proposta de exercícios físicos adaptados, em sua etapa final. Conclui com a aplicação e execução de atividades físicas adaptadas, obtendo-se melhorias na saúde cardiovascular, fortalecimento de músculos e articulações, controle do ganho de peso, redução do risco de complicações na gravidez e melhora do bem-estar emocional. Esses resultados foram comparados com pesquisas de outros autores que corroboram que a implementação de atividades físicas adaptadas contribui para melhorar a saúde da mãe e do feto.

Palavras-chave: adaptação de programas, exercícios físicos adaptados, gravidez na adolescência.

INTRODUCTION

In the current global context, there is a primary concern about the fertility rate in the adolescent stage, with the incidence of 46.7 births per 1,000 women between the ages of 15 and 19. However, the magnitude of this phenomenon is likely to be much higher in less developed geographic regions such as Africa and Latin America, where the fertility rate increases to 101.7 and 68 children, respectively (Urighuen *et al.*, 2019), therefore, these



numbers underline the urgency of addressing adolescent pregnancy as a global public health problem.

Throughout history, physical exercise in pregnant women has evolved significantly, initially there were recommendations for absolute rest during pregnancy and currently, the promotion of moderate and safe physical activity (Soto & Perez, 2018). In the past, it was believed that exercising during pregnancy could be harmful to the mother and fetus, but it is now known that regular exercise can be good for the health of both (Soto & Perez, 2018).

In the Ecuadorian context, Physical Education, as a school discipline, plays a fundamental role in the comprehensive training of students by contributing in a specific and interdisciplinary way to the construction of their profile (Martín et al., 2023), the author from his approach points out that training must be provided to future high school graduates so that they can develop an autonomous bodily, motor and social identity.

The area of Physical Education within the curriculum focuses on the multidisciplinary approach to education, where knowledge is acquired that allows the development of theoretical foundations and practical skills, to promote comprehensive development and generate autonomy skills in future development (MINEDUC, 2016).

The Physical Education subject focuses on providing complete training about the human body and contributes significantly to the maintenance of health, since its objective is to educate people about the proper management of their own body and provides knowledge to preserve physical and corporal well-being (Instituto Nacional de Educación Física, 2021).

Acosta & Pérez (2021) agree that physical activity is directly connected to the following elements: physical condition, capacity to perform physical activity, skeletal movement, energy consumption and relationship of the human system as a whole.

During the state of pregnancy, the practice of adapted physical activities becomes a fundamental consideration, therefore the importance of staying active lies in the benefit of both the mother's health and the healthy development of the fetus (Gallo et al., 2023), in this context, the recommendations for carrying out physical activities vary depending on the



trimester of pregnancy and the need to adjust the exercise routine is recognized, according to the physiological and anatomical changes that the body experiences, at each stage.

The regular and systematic practice of exercises such as walking, sports and recreational activities of all kinds have proven to be very useful for the prevention of a sedentary lifestyle, the development of good health habits, healthy recreation and a good quality of life (Castañeda & Santa, 2021; Chaparro *et al.*, 2020). From with this background, the objective is to propose a program of physical activities adapted for the inclusion of pregnant students in the physical education class at the "Pichincha" Fiscal Educational Unit.

MATERIALS AND METHODS

The present research took place in the 2022-2023 academic period, the intentionally selected sample corresponds to eight pregnant students belonging to the upper basic and high school levels respectively, three teachers who teach in the subject Physical Education and parents of the "Pichincha" Fiscal Educational Unit.

The object of the study was the implementation of an adapted physical exercise program, aimed at pregnant adolescents. The research approach was qualitative, the students, their perceptions and the emotional and social impact of the program were analyzed; This allowed the holistic and detailed understanding of the adapted physical activities, with an exploratory scope that provided the monitoring and participation of the students in the different activities, with a non-experimental design.

To understand and address the main specific needs in pregnant adolescents during Physical Education classes, the materialist dialectic was used as the main method that allowed the identification of the problem until the proposal of adapted physical exercises was carried out, and the identification of the object of study. The evaluation criteria used were:

- Medical approval from the obstetrician.
- The adaptation of physical exercises for pregnant women.
- Methodological suggestions issued by the Student Counseling department.
- Monitoring heart rate and blood pressure.



- Pay attention to signs of discomfort during exercise.

The scientific observation was carried out in order to determine the involvement of pregnant adolescents in Physical Education classes and the teacher's intervention regarding the treatment given to these cases. Subsequently, interviews were conducted with parents in order to collect relevant information to provide comprehensive and personalized care to the pregnant woman, in her family and socioeconomic environment; Physical Education teachers were surveyed to obtain information about the methodological procedure they used in including or not including pregnant women in classes and to verify their knowledge of the application of physical exercises appropriate for them.

Through the documentary review, information was collected and analyzed on different aspects related to pregnancy, maternal health, prenatal care and physical activity, thus obtaining updated information, identification of risks, benefits and recommendations for Physical Education during the pregnancy stage.

The validation of the physical exercise program adapted for pregnant adolescents was carried out through the judgment of teachers specializing in Physical Education, who evaluated the methodology of the program and its adaptability to the educational context.

RESULTS AND DISCUSSION

Within the processes and protocols that must be deployed in a particular case and as we find ourselves immersed in a public policy program managed by the Ministry of Education and Culture (MINEDUC), the prevailing concern is supported by the little involvement of pregnant women in Physical Education classes.

Given the above and prior authorization from the representatives, to include their daughters in Physical Education classes, evaluation criteria were taken into consideration such as medical approval, suggestions issued by the Department of Student Counseling (DECE), curricular adaptations to implement, monitoring heart rate and blood pressure and above all, paying attention to any warning signs that the pregnant woman presents during this class.



With the application of surveys aimed at pregnant adolescents, parents and Physical Education teachers, it was determined that:

Of the students, 12.5% report not being able to carry out physical activities, due to their clinical condition, which is why they receive the teaching-learning process under the hospital classroom program for all subjects in the curriculum. On the other hand, 87.5% (7) successfully complete the research phase.

Regarding the teachers surveyed, 33.3% (1) expresses insecurity and fear when proposing physical activities in the event of pregnancy. In contrast, 66.7% have received training, are in the training process or have updated their knowledge regarding the treatment, protocols and curricular adaptations necessary to address the contents of physical activities in the event of pregnancy in students.

7.5 % of parents expresses that, due to their educational level and socioeconomic situation, they have limited knowledge about how to manage the problem of pregnancy at an early age. This is because they have not completed their education and their main economic activity is linked to recycling. In this context, pregnancy control in their daughters is carried out at the medical subcenter in the Toctiuco neighborhood, and the adolescents are forced to abandon schooling to meet their expenses.

Meanwhile, 62.5% indicate that they have had conversations about sexual education with their daughters and have moderately favorable economic conditions to access private medical treatments. Likewise, they highlight the conviction that education constitutes the best inheritance they can bequeath and agree with the inclusion of their clients in the adapted physical exercise program.

Based on the information obtained, two students with a sedentary lifestyle before and during the second trimester of their pregnancy were identified; this information is important to include them in the physical exercise program and to compare their initial and final conditions, which allows evaluating improvements in the health of the mother and



baby. With the most repeated criteria of those surveyed, about the importance of physical activities during pregnancy, it is evident that (Table 1):

Table 1. Comparative table, information obtained through surveys

STUDENTS	PARENTS OF FAMILY	PE TEACHERS
They are not aware of the benefits of exercise during pregnancy, but they show interest in joining the adapted physical activity program for pregnant adolescents who seek to improve their physical condition through personalized exercises, during Physical Education classes.	They consider it crucial that the institution encourage more participation in educational activities on pregnancy prevention. They argue that parents and schools should address sexual education issues and provide regular information on the medical monitoring of pregnant women. They approve and expect positive results from their daughters' participation in the exercise program adapted for these adolescents, in Physical Education.	It is crucial to implement pregnancy prevention programs and adjust the lesson plan for students in grade 2, due to vulnerability due to pregnancy. The lack of training of some teachers to address teenage pregnancy in Physical Education classes is noted, and the objective of involving all pregnant women in these classes is highlighted.

In table 1, it is observed that members of the educational community are interested in actively involving and including pregnant women in the daily activities of Physical Education classes, under the expert guidance of the professionals who teach the subject.

On the other hand, figure 1 reflects the information provided by the DECE on the status of pregnant students, which emerges as an essential tool for the area of Physical Education. This update allows teachers to make informed decisions by including or not these students in their lesson plans. It should be noted that only one of the pregnant women, unaware of her condition, practiced kickboxing during the first five months of pregnancy, without any incident (Figure 1).



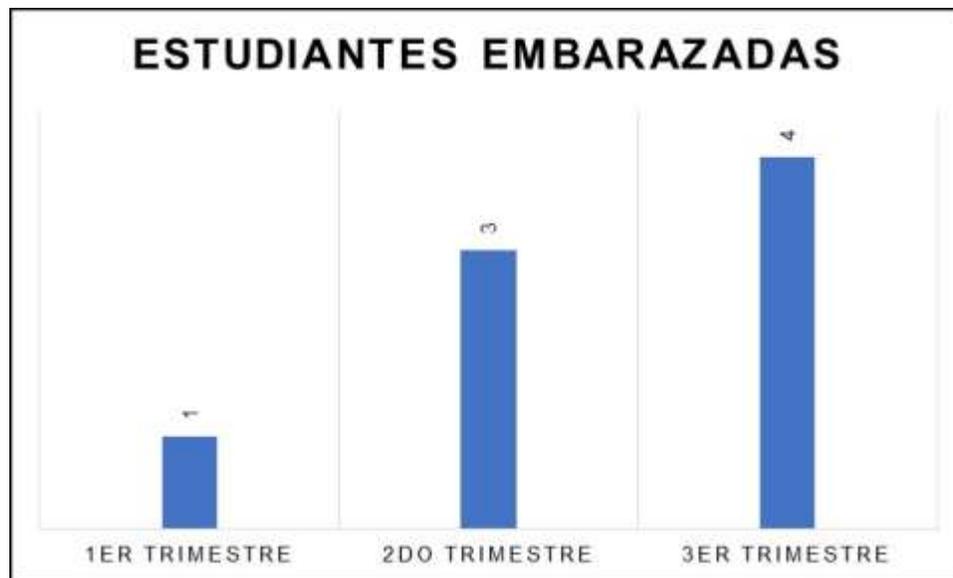


Fig. 1. - Pregnancies by trimester

The work methodology for the implementation of a physical activity program for pregnant adolescents consists of 10 weeks of constant and dedicated work, of which one case was dismissed due to the presence of complications in the pregnancy.

As detailed in Table 2, it is confirmed that from the first week there is a notable acceptance and evident interest on the part of the pregnant women in active participation in various activities proposed by the teachers, supported by their experience during Physical Education classes (Table 2).



Table 2. - Matrix of physical exercises for pregnant adolescents

General objective: Design a program of adapted physical activities with the purpose of promoting the health and well-being of pregnant adolescents, through the practice of safe and appropriate exercises for their situation.				
Warm-up: This should be done on the extremities of the upper and lower body respectively, accompanied by soft music, which encourages and stimulates physical exercise.				
Week	Exercise	Duration	Intensity	Observations
Week 1 – 2	Hike	20 minutes	Moderate	Avoid uneven surfaces. Perform smooth and controlled movements.
	Stretches	10 minutes	Low	
Week 3. 4	Leg strengthening exercises.	15 minutes	Low	Ensure correct postural hygiene. Avoid diving and maintain good hydration.
	Swimming	30 minutes	Moderate	
Week 5 – 6	prenatal yoga	45 minutes	Low	Carefully follow the instructor's instructions.
Week 7 – 8	Stationary bicycle	20 minutes	Moderate	Ensure correct postural hygiene.
	Arm strengthening exercises	15 minutes	Low	
Week 9 – 10	Prenatal Pilates	30 minutes	Low	Ensure correct postural hygiene and correctly carry out the teacher's instructions.
Return to calm: Through breathing and elasticity exercises appropriate to the condition of pregnant adolescents.				
Materials: Appropriate place for the class, patio, lively music, speaker, chalk, mats, football ball, yoga mat.				

It is emphasized that during the implementation of adapted physical exercise routines, positive changes are observed in the mood of these adolescents, as well as a decrease in their stress levels; additionally, an improvement in their caloric intake. These results are achieved with the collaboration and dedication of the parents, the medical criteria and the constant monitoring provided by the Physical Education professionals at the institution subject to investigation. Data triangulation shows that:

- The data collection provides an updated view of pregnancies among students in the educational unit. The information is obtained through various sources, including field observation, interviews and surveys directed at students, parents and teachers. In addition, reports provided by the Student Counseling Department, as well as medical and psychological reports, were consulted.
- Information verification establishes standards of quality and reliability by ensuring that it comes from updated and reliable sources.
- Comparison of data reveals differences in results and calls for the search for additional explanations or justifications. Data validation allows to verify the usefulness of the information obtained, through observations, interviews and



surveys, as well as the participation of students, medical professionals, mental health experts, parents and educators in the development of this research study.

- The importance of implementing a personalized physical activity program for pregnant adolescents in the Physical Education classes of the "Pichincha" Fiscal Educational Unit is emphasized. This program aims to create a favorable environment that allows young pregnant women to participate in physical activities with confidence and without worries.
- The creation of this program, based on the inclusion of pregnant adolescents in the Physical Education class hours, is focused so that they can carry out physical activity, segmented by routines according to their condition, which allow reducing the rates of sedentary lifestyle.
- Seeking health and adequate physical condition, as well as self-confidence, are important factors in setting and developing achievable goals; exercise involves many steps to achieve health and adequate physical condition (Martín *et al.*, 2023).
- It is crucial to take into consideration that each pregnant woman is unique and the indications for physical activity may change according to the specific health and physical condition of each individual. It is always suggested to seek medical advice before starting a new exercise regimen during pregnancy. The description of the physical activities suggested for pregnant adolescents is detailed in Table 2.

It is considered that the exercise regimen should be personalized to adapt to the physical and emotional development of adolescents, considerations include their physical condition, hormonal and emotional changes, as well as the safety and well-being of the pregnant woman (Claiborne *et al.*, 2023; Cuji & Mejías, 2023; Favier *et al.*, 2018; Figueroa *et al.*, 2021).

The above indicates that pregnant adolescents must carry out the adapted physical exercise program, with the guidance of a doctor (gynecologist) and an expert in Physical Education. This procedure must be carried out jointly, so that the exercise program is efficiently adapted to the needs of pregnant women (Molina *et al.*, 2004). Below are some suggestions for physical exercises that pregnant women can do (Table 3).



Table 3. - Physical exercises allowed in pregnant adolescents

Type of exercise	Description	Benefits
Walk	Take walks at a comfortable pace.	Improves circulation, strengthens the heart and muscles, helps maintain a healthy weight.
Swimming	Perform gentle, low-impact exercises.	Strengthens muscles, improves cardiovascular endurance, relieves back pain and reduces swelling.
Prenatal yoga	Perform yoga postures adapted for pregnant women.	Improves flexibility, strengthens muscles, relieves stress and promotes relaxation.
Prenatal Pilates	Perform Pilates exercises, adapted for pregnant women.	Strengthen pelvic floor muscles, improve body posture, relieve back pain and improve stability.
Kegel exercises	Perform pelvic floor contractions	Improves bladder control, strengthens support of the pelvic organs, reduces fecal incontinence.

Among the main difficulties identified during the observation stage and in the search for information and collection of information, through surveys directed directly at pregnant adolescents and interviews applied to teachers and parents of the educational unit, show multiple problems such as the isolation of pregnant women during Physical Education class hours, the lack of knowledge and fear among teachers as they do not know what type of physical activities they can develop with them in each trimester of their pregnancy, and the misleading recommendations by of the DECE, due to the prohibition of the pregnant woman in physical activities. From this, the implementation of the physical activity program is proposed, which has a particular characteristic that is the implementation of differentiated exercises, as detailed in table 4 (Table 4).

Table 4. - Proposal for an adapted physical exercise program

Program of physical activities adapted for the inclusion of pregnant students in the Physical Education class
<p>Introduction:</p> <p>This proposal arises as a direct measure to address the alarming increase in teenage pregnancies within the environment of the Pichincha Fiscal Educational Unit. By establishing a specific program of adapted physical activities, the aim is to address this problem, supported by solid scientific evidence that supports the favorable connection between the practice of physical exercise and the individual conditions of pregnant women.</p>
Goals



General	Design a program of adapted physical activities with the purpose of promoting the health and well-being of pregnant adolescents, through the practice of safe and appropriate exercises for their situation.
Specific	<ol style="list-style-type: none"> 1. Determine the theoretical and methodological foundations that support the selection of exercises integrated into the physical exercise program adapted for pregnant adolescents. 2. Verify the health conditions of pregnant women through the regular medical examinations that they must carry out. 3. Validate the effectiveness of the program, through the review of specialists and the benefits derived from the incorporation of adapted physical exercises in Physical Education classes. 4. Regularly evaluate the adolescents' progress and adaptation to the exercise program, making modifications when appropriate in order to ensure safety and effectiveness.
<p>Justification:</p> <p>Pregnant adolescents, finding themselves in a crucial phase of their lives, face a series of challenges that can have repercussions on their physical and mental health during pregnancy. The adapted physical exercise program is presented as an appropriate strategy to integrate pregnant students in the inclusion process towards their peers and offers a holistic approach that promotes the emotional and behavioral well-being of pregnant women.</p>	
<p>Warm-up: This should be done on the extremities of the upper and lower body respectively, accompanied by soft music that encourages and stimulates the performance of physical exercise.</p>	
<p>Low impact exercises</p>	
<p>Stretching exercises. This type of exercise is ideal for relieving muscle tension and improving flexibility. Pregnant women can perform gentle stretches of their legs, arms and back to relieve discomfort and reduce the risk of cramps. It is important to avoid sudden movements and hold each stretch for at least 10-15 min.</p> <p>Hikes. Walking at a moderate pace helps improve physical condition, promotes blood circulation and strengthens muscles, an activity that should be done daily, preferably 30 minutes.</p> <p>Stationary bicycle. First, the stationary bicycle must be located at the height and comfort of the pregnant woman, the seat must be located at the correct height, the knees must be slightly bent to be able to pedal.</p> <p>The intensity of the exercise must be monitored by the teacher, as well as by the pregnant woman. The practice of this exercise must allow for a direct conversation and that no symptoms of fatigue are shown. It is vitally important to listen to the body in the event of any symptoms. The exercise should last approximately 15-20 minutes and, as her physical condition increases, the duration can be gradually increased to a maximum of 25-30 minutes.</p> <p>Swim. The water temperature should be ideal, avoid doing it in cold water pools and rivers to prevent any accident caused by a slip. The depth should give the pregnant woman the confidence to remain standing and be able to perform body movements underwater in a subtle and relaxed manner. These exercises can be walking, arm movements, lateral movements of the legs and arms, as well as performing turns. .</p> <p>Likewise, in the water you can include floats, balls of different sizes, among others that guarantee the combination of stretching exercises before swimming. The exercise should last approximately 15-20 minutes and, as your physical condition increases, the duration can be gradually increased to a maximum of 25-30 minutes.</p> <p>Dance. To carry out this activity, it must be selected the appropriate music, emphasize the physical change that the pregnant woman's body is undergoing, select the type of steps that present security and confidence, low-impact steps. This exercise practice can be done for an approximate duration of 5-10 minutes, per session.</p> <p>Circular waist movement. Starting position standing, separate the legs at shoulder height, place the hands on the waist and perform the circular movement, with a frequency of 2x10 repetitions with a rest interval of 5 seconds.</p> <p>Knee pendulum. Initial standing position, consists of performing a slight and slow swing of the body, while a lateral movement of the right leg is carried out with the rise and fall of the knee, while the hands go down, the movements of the arms and knees are combined in unison, this exercise should be performed with a frequency of 2x10 repetitions with a rest interval of 5 seconds in each series.</p>	



Heel swing. Standing position, consists of performing a slight and slow swing of the body, while a lateral movement of the right leg is performed with a backward bend, accompanied by a rhythmic movement of the arms that must be at an approximate angle of 45°. This exercise should be performed with a frequency of 3x10 repetitions with a rest interval of 5 seconds in each series.

March. Bending the knees downwards Starting position, separate the legs without losing stability, with the back upright, the arms on the lateral side of the hips, the pelvis is flexed downward slowly, while the hands rise to the chest height and join in front, this exercise should be performed for a period of 3x10 repetitions with a 10-second rest for each series.

Deadlift on one leg (L) and (R) This exercise can be performed at any stage of pregnancy with or without support, initial position standing, with back straight, hands at hip level, then raise the Right leg back and raise arms forward, 2x10 paused repetitions with rest intervals of 5 seconds. Repeat the sequence in the same way with the other leg, 5 seconds rest.

Prenatal yoga and Pilates

Cat-cow. Quadruped initial position, palms of the hands on the floor and insteps of the feet on the floor, knees hip-width apart, in the cat position, inhale, subtly contract the abdomen and raise the loin of the back, at this point bring the chin towards the chest, while in the empty position, gently exhale the air from the lungs, returning the abdomen to its initial position, perform this exercise 2x5 repetitions, with a rest interval of 10 seconds.

Warrior pose I and II. Initial standing position, feet together and arms at the sides of the body, with the right foot take a step back, tip of the toes always facing forward, feet hip-width apart, bend the left knee, maintaining firmness with this foot planted on the ground, form a 90° angle between the knee and the ankle. Turn torso to the left, aligning shoulders over your hips. Extend arms to the sides, at shoulder height, with palms facing down, maintain the posture for several deep breaths, feeling the stretch in the right leg and the strength in the left leg.

This posture helps strengthen and stretch the muscles of the legs, arms and torso, while improving balance and stability, perform this exercise 2x4 repetitions, with a rest interval of 10 seconds.

Tree. Starting position standing, from the firm position, distribute the weight of the body over the right leg, slide the left foot slowly over the right foot until reaching the knee, inhale through the nose and join the palms of the hands in front of the chest, keep breathing constant by inhaling and exhaling through nose. Raise hands little by little until arms are stretched above head, keeping breathing constant by inhaling and exhaling through nose.

Reverse the process by lowering hands gently until they reach chest height, slide hands to the side of hips, then slide leg slowly until reaching the starting position. Finally, to do the same process with the left leg, perform this exercise 2x4 repetitions, with a rest interval of 10 seconds.

Child (Child's Pose). Starting position sitting on the knees, bring the feet together at the back and open the knees approximately at shoulder height, with the back upright, at this point always accompany this action with breathing exercises. Tilt towards forward the chest slightly, while the hands rest on the floor in front of the chest to ensure stability, at this point inhale and exhale gently through the nose.

Lotus Flower. Starting position sitting, with legs extended forward, then bend the right knee and place the right foot on the left thigh, close to the hip, and do the same with the other leg. Keep hands on knees, back straight and breathe deeply. It is suggested to place a pillow under knees for greater comfort. To finish, uncross the legs and return to the starting position. Perform the exercise for 2x3 repetitions, with 10-second pauses between each series.

Starfish. Starting position standing, with legs open to the sides and with back straight, raise arms to shoulder height and with palms facing forward. Inhale and perform a slight bend of the trunk to the right, while exhaling return to the central point of the body, perform the same action to the left, perform this exercise 2x5 repetitions, with a rest interval of 5 seconds.

Butterfly. Starting position seated, with legs extended and back straight, then bend knees and bring the soles of feet together, placing hands on ankles or elbows on knees to maintain balance.



It is recommended to use a pillow under knees for comfort and to avoid discomfort. Deep, relaxing breathing helps relieve tension as gently sway knees up and down, like the flutter of a butterfly. To finish, stretch legs and return to the starting position. This exercise is performed for 2x3 repetitions, with a 10-second rest between each set.

Hip eight. Initial standing position, with legs open to the sides and back straight, place the arm and hand under and on the belly respectively, constantly perform breathing exercises, inhale and exhale gradually, at this point perform slow, cadent swings consecutively, while drawing the number 8 in the air with hips, perform this exercise 2x4 repetitions, with a rest interval of 5 seconds.

Downward facing dog pose. From the position on all fours, in a relaxed manner and with great caution, raise your hips towards the ceiling, forming an inverted "V" with body. Hold the posture and breathe, then we will perform 2x8 repetitions, with a rest interval of 30 seconds.

Camel Pose. From the kneeling position, arch back backwards, bringing hands to heels with a smooth and progressive movement, remember to maintain the posture and breathe, then we are going to perform 2x6 repetitions, with a rest interval of 30 seconds.

Cobra Pose. Lie face down, place hands under shoulders and lift torso up, head raised, looking forward, maintaining calm and concentration, always maintain your posture and breathe, then we are going to perform 2x8 repetitions with a rest interval of 30 seconds.

Angle Pose. From the standing position, open legs and extend arms in line with shoulders, maintain the posture and breathe, we are going to work on this in 2x6, repetitions with a 30-second rest interval.

Stability ball. Sitting on a large ball, perform pelvic tilt and torso stabilization movements. Breathe deeply while maintaining balance, we are going to work it in 3x10 repetitions with a 30-second rest interval.

Bridge with ball. Lying on back with knees bent and feet on the floor, raise hips while holding a ball between legs. Hold the up position for a second before lowering yourself down. Breathe fluently. Remember to work this movement, 3x10 repetitions with a 30-second rest interval.

Kegel exercises

The postures adopted by the patient student's body can be sitting or lying prone and these exercises mainly serve to strengthen the pelvic floor.

First trimester 10 repetitions with an interval between exercises of 5 seconds.

Second trimester 10 repetitions with an interval between exercises of 10 seconds.

Third trimester 5 repetitions with an interval between exercises of 10 seconds.

Breathing exercises

Diaphragmatic. Initial position standing, sitting, lying, for this you must place both hands on the belly, inhale air through the nose, feel how the abdomen expands, exhale the air through the mouth gently, feeling how the abdomen returns to the initial state, practice the 5x10 exercise, with a 5-second rest interval for each repetition.

Intercostal. Starting position standing, sitting, lying, back straight and shoulders relaxed, place hands under the armpits just to one side of the ribs, inhale gently until feeling the ribs expand and then exhale through the mouth little by little, until feel ribs returning to their place, practice the 5x10 exercise, with a 5-second rest interval for each repetition.

Back to the calm. Through breathing and elasticity exercises appropriate to the condition of pregnant adolescents.

Experience in practicing adapted physical exercises

The implementation of inclusive Physical Education involves carrying out adapted physical exercises during classes aimed at pregnant adolescents. These exercises are designed in



accordance with safety protocols, and are adapted to the individual needs of each student, which facilitates the integration of pregnant women with their classmates. This practice promotes a therapeutic and preventive approach within the field of physical education.

Anticipation, motivation and preparation of the sessions:

- Before each session, it is essential to follow the doctor's recommendations, especially if the pregnant woman has any complications that may arise while performing exercises.
- Perform physical exercises with correct body hygiene, always be in safe places that provide the guarantee to be able to perform the exercises without any setback.
- Parents, the teacher and students should motivate the pregnant woman to participate in physical activities, using respectful and encouraging language. The constant support of everyone is essential, the importance of exercise for health during pregnancy is recognized.
- Maintaining a harmonious work environment is essential for achieving the stated objectives.
- Integration of students during Physical Education classes:
- The program starts with constant motivation and awareness of the importance of collaborative work, through presentations it is suggested to address the issue of teenage pregnancy, causes, consequences and the importance of practicing physical exercise in pregnant women.
- Promoting awareness about class group participation along with the pregnant woman provides confidence and security for them to integrate into the practical activities promoted by this physical exercise program.
- Each session offers the possibility of executing all the exercises, the practice begins with the execution of calisthenics and stretching exercises, then with the execution of low-impact exercises, prenatal Yoga and Pilates.
- Breathing exercises are recommended to be performed constantly as an interval in the execution of each exercise.



- Initially and when practicing physical exercise, the pregnant woman should start with few sequences and gradually increase the frequency of the exercise, according to her abilities.
- The support and supervision of the Physical Education teacher must be constant, from teaching the exercise to its correct practice by the student.
- Performance evaluation:
- Frequently check that medical reports (gynecologist) do not contraindicate the practice of physical exercises.
- The progressive increase in exercises depends solely on the physical condition of the pregnant woman.
- A constant evaluation must be carried out, as indicated in the national Physical Education curriculum, the inclusion criteria for curricular adaptations are taken into account.
- It is considered that the main contribution of this research is the proposal of a program of physical activities adapted for the inclusion of pregnant students in the Physical Education class, in the Pichincha Fiscal Educational Unit, of the Quito canton, province of Pichincha, in the 2022-2023 academic period. These types of activities under the guise of programs seek to promote the health and well-being of pregnant adolescents, while educating them about the benefits of physical activity during this stage.

It is crucial that pregnant women are aware of the physiological effects of physical activity and perform safe and appropriate exercises, supervised by a professional, to avoid inconveniences, it is essential to consider the duration and intensity of physical activity during pregnancy (Scharagrodsky & Barreto, 2021).

Exercising during pregnancy improves maternal health, controls weight gain, reduces the duration of labor, pain and acute stress. In addition, it contributes to maintaining a healthy weight and obtaining normal pregnancy outcomes, as stated by Claiborne *et al.* (2023), results that coincide with the research of Soto & Pérez (2018) who argue that physical activity should be light and moderate and that the practice of constant exercise leads to great



benefits for both the mother and the fetus. Aguilar *et al.* (2019) state that physical condition is improved, body weight balance is obtained, and greater fetal well-being is obtained.

The proposal of an exercise program adapted for pregnant adolescents involves considering not only the unique physical and physiological characteristics of pregnant adolescents, but also their specific emotional and psychological needs. This highlights the importance of personalized care and careful adaptation of general recommendations issued by doctors (Anchía, 2023; Bonifaz *et al.*, 2020; Caraguay *et al.*, 2022).

The research concludes that the implementation and execution of the physical exercise program in pregnant students, and especially those who voluntarily participate in it, helps reduce their stress levels and improves their cardiovascular health, according to Morante *et al.* (2021). This information is corroborated by mentioning that for a program to have success, adherence and no dropout among participants, it is preferable that pregnant students carry out the activity voluntarily and not be referred to exercise under obligation.

In addition, the performance of each and every one of the proposed exercises must be carried out after considering the capacity of the pregnant student, the intensity, the volume of the exercise, the body's tolerance to it and finally that physical exercises are preferably performed at daily, in order to strengthen the muscles that are integrally involved in childbirth.

CONCLUSIONS

The relevance of research in social and educational contexts was emphasized, particularly with regard to inclusive processes and Physical Education. Furthermore, the need to effectively integrate theoretical, methodological and practical elements in the improvement of these teachers was highlighted.

In general terms, the proposal presented was considered as a starting point, valuable information material to meet the needs of pregnant adolescents within the field of Physical Education.



The elements collected in this work were part of the characterization that physical activity professionals need to plan more inclusive classes, according to the real problems of pregnant women. In this way, strengthening and improvements in cardiorespiratory, muscular and joint health, control of weight gain, reduction of the risk of pregnancy complications and increased emotional well-being were guaranteed.

REFERENCAS

- Acosta, A. G., & Pérez, C. L. (2021). Modelo predictor de las conductas del balance energético corporal BEC. Retos: nuevas tendencias en educación física, deporte y recreación, (41), 653-663. <https://dialnet.unirioja.es/descarga/articulo/8074583.pdf>
- Aguilar-Cordero, M., Sánchez-López, A., Rodríguez-Blanco, R., Noack-Segovia, J., Pozo-Cano, M., López-Contreras, G., & Mur-Villar, N. (2014). Actividad física en embarazadas y su influencia en parámetros materno-fetales; revisión sistemática. *Nutrición Hospitalaria*, 30(4), 719-726. doi: <https://dx.doi.org/10.3305/nh.2014.30.4.7679>
- Anchía-Umaña, I. (2023). La educación física: Derecho a una educación de calidad. *MHSalud*, 20(1). doi: <https://doi.org/10.15359/mhs.20-1.4>
- Bonifaz-Arias, I., Sánchez-Anilema, J., Herrera-Mena, V., & Paredes-Tapia, R. (2020). El nuevo currículo de educación física en el Ecuador. *Explorador Digital*, 4(3), 252-265. doi: <https://doi.org/10.33262/exploradordigital.v4i3.1349>
- Caraguay-Gonzaga, S., Martínez-Camacho, J., & Vivanco-Lapo, D. (2022). FACTORES DE RIESGO ASOCIADOS AL EMBARAZO EN ADOLESCENTES CENTRO DE SALUD N°1 Y N°3 DE LOJA. *Enfermería Investiga, Investigación, Vinculación, Docencia y Gestión*, 7(4), 1-8. https://www.researchgate.net/publication/366890843_FACTORES_DE_RIESGO_A_SOCIADOS_AL_EMBARAZO_EN_ADOLESCENTES_CENTRO_DE_SALUD_N1_Y_N3_DE_LOJA



Castañeda-Paredes, J., & Santa-Cruz-Espinoza, H. (2021). Factores de riesgo asociados al embarazo en adolescentes. *Enfermería Global*, 20(62), 109-128. doi: <https://dx.doi.org/10.6018/eglobal.438711>

Chaparro-Parada, S. M., Jaimes-Jaimes, G., & Noy-Martínez, M. O. (2020). La educación física en la básica primaria. *Revista Digital: Actividad Física y Deporte*, 6(2). <https://dialnet.unirioja.es/servlet/articulo?codigo=8670936>

Claiborne, A., Jevtovic, F., & May, L. (22 de septiembre de 2023). A narrative review of exercise dose during pregnancy. <https://www.fisiologiaddejercicio.com/dosis-de-ejercicio-durante-el-embarazo/>

Cuji-Castro, E., & Mejías, M. (2023). Factores de riesgo en el embarazo adolescente. *RECIMUNDO*, 7(2), 217-227. doi: [https://doi.org/10.26820/recimundo/7.\(2\).jun.2023.217-227](https://doi.org/10.26820/recimundo/7.(2).jun.2023.217-227)

Favier-Torres, M., Samón-Leyva, M., Ruiz-Juan, Y., & Franco-Bonal, A. (2018). Factores de riesgos y consecuencias del embarazo en la adolescencia. *Revista Información Científica*, 97(1), 205-214. doi: <https://www.redalyc.org/journal/5517/551759182023/html/>

Figueroa-Oliva, D., Negrin-Garcia, V., & Garcell-Fernández, E. (2021). Riesgos y complicaciones asociados al embarazo en la adolescencia. *Revista de Ciencias Médicas de Pinar del Río*, 25(5). http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1561-31942021000500025

Gallo-Galán, L. M., Gallo-Vallejo, M. Á., & Gallo-Vallejo, J. L. (2023). Recomendaciones prácticas sobre ejercicio físico durante el embarazo basadas en las principales guías de práctica clínica. *Aten Primaria*, 55(3). doi: 10.1016/j.aprim.2022.102553

Gallo-Galán, L., Gallo-Vallejo, M., & Gallo-Vallejo, J. (2023). Recomendaciones prácticas sobre ejercicio físico durante el embarazo basadas en las principales guías de práctica clínica. *Atención Primaria*, 55(3). doi: <https://doi.org/10.1016/j.aprim.2022.102553>



Instituto Nacional de Educación Física. (2021). ¿QUÉ ES LA EDUCACIÓN FÍSICA? Santo Domingo: Gobierno de República Dominicana.

Martín, P. d., Sebastiani-Obrador, E., & Blázquez-Sánchez, D. (2023). Educación Física en Ecuador: análisis de la percepción de alumnos. REVISTA IBEROAMERICANA DE PSICOLOGÍA DEL EJERCICIO Y EL DEPORTE, 15(4), 180-183.

MINEDUC. (2016). Educación Física. Quito: Ministerio de Educación de Ecuador.

Molina, M., Ferrada, C., Pérez, R., Cid, L., Casanueva, V., & García, A. (2004). Embarazo en la adolescencia y su relación con la deserción escolar. Revista médica de Chile, 132(1), 65-70. doi: <http://dx.doi.org/10.4067/S0034-98872004000100010>

Morante E.A, Irigoyen, J.Y, & Urteaga, A.I (2021). Programas de Ejercicio Físico para Mujeres Embarazadas de Prescripción Básica basada en Evidencia Científica. Revista Iberoamericana de Ciencias de la Cultura Física y el Deporte, 10(3), 116-138. <https://dialnet.unirioja.es/servlet/articulo?codigo=8234631>

Scharagrodsky, P., & Barreto-Andrade, J. (2021). Enfoques, instituciones y expertos en una disciplina en crecimiento. El caso del XVI Congreso Panamericano de Educación Física, Ecuador 1997. Revista Andina de Educación, 5(1). doi: <https://doi.org/10.32719/26312816.2021.5.1.2>

Uríguen-García, A., González-Bracho, J., Espinoza-Díaz, J., Hidalgo-Noroña, T., García-Alcivar, F., Gallegos-Paredes, M., Valle-Brito, P. (2019). Embarazo en la adolescencia: ¿La nueva "Epidemia" de los países en Desarrollo? AVTF, 38(3), 232-245. https://www.revistaavft.com/images/revistas/2019/avft_3_2019/20_embarazo_adolescencia.pdf

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The author declares that there are no conflicts of interest.



Author's contribution:

The author is responsible for writing the work and analyzing the documents.



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