




## Estrategia didáctica para la inclusión de estudiantes con meningocele en la clase de educación física

### *Didactic strategy for the inclusion of students with meningocele in the physical education class*

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**Palabras claves:**

estrategias didácticas, inclusión, educación física, meningocele, espina bífida

**Keywords:**

teaching strategies, inclusion, physical education, meningocele, spina bifida.

**Resumen**

**Introducción:** Incluir a estudiantes con meningocele en las clases de Educación Física es un gran reto. Esto requiere el uso de estrategias de enseñanza inclusivas. **Objetivo:** Diseñar una estrategia didáctica para la inclusión de estudiantes con meningocele en las clases de Educación Física. **Metodología:** La investigación se ubicó en una Unidad Educativa de Santo Domingo, Ecuador, adoptándose para su desarrollo, un enfoque cualitativo, de naturaleza descriptivo y de campo, apoyado en métodos teóricos y empíricos y técnicas como la observación directa, la entrevista y la revisión documental; todo lo cual facilitó el proceder investigativo y la interpretación de resultados en las 4 fases que comprendió el proceso investigativo. **Resultados:** 1. Se implementa una estrategia didáctica fundamentada en cinco dimensiones: identificación de necesidades, adaptaciones curriculares personalizadas, evaluación diversificada, adecuación de materiales y evaluaciones individualizadas, la cual se centró en el desarrollo de adaptaciones curriculares y de juegos colaborativos. 2. Se logra contribuir al proceso de inclusión y al desarrollo integral del estudiante objeto de estudio. **Conclusiones:** La implementación en la práctica de la estrategia didáctica propuesta evidenció su factibilidad, pertinencia y novedad científica, permitiendo facilitar el proceso de inclusión dentro de la clase de Educación Física y la mejora de las capacidades del estudiante con meningocele, lo cual resulta altamente significativo dentro del contexto de la Educación Física Inclusiva. **Área de estudio general:** Educación Física. **Área de estudio específica:** Inclusión en Educación Física para estudiantes con necesidades especiales.

**Abstract**

**Introduction:** Including students with meningocele in Physical Education classes is a great challenge. This requires the use of inclusive teaching strategies. **Objective:** Design a teaching strategy for the inclusion of students with meningocele in Physical Education classes. **Methodology:** The research was in an Educational Unit in Santo Domingo, Ecuador, adopting a pre-experimental design for its development, with a qualitative approach, descriptive and field in nature, supported by theoretical and empirical methods and techniques such as direct observation, interviews and documentary review; all of which facilitated the

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investigative procedure and the interpretation of results in the 4 phases that included the investigative process. Results: 1. A teaching strategy is implemented based on five dimensions: identification of needs, personalized curricular adaptations, diversified evaluation, adaptation of materials and individualized evaluations, which focused on the development of curricular adaptations and collaborative games. 2. It is possible to contribute to the inclusion process and the comprehensive development of the student under study. Conclusions: The implementation in practice of the proposed teaching strategy showed its feasibility, relevance, and scientific novelty, allowing to facilitate the inclusion process within the Physical Education class and the improvement of the abilities of the student with meningocele, which is highly significant within the context of Inclusive Physical Education. General area of study: Physical Education. Specific area of study: Inclusion in Physical Education for students with special needs.

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## Introduction

Meningocele is a variant of spina bifida, caused by a congenital anomaly. It is characterized by the herniation of the meninges, the membranes that surround the brain and spinal cord. This condition results from an incomplete closure of the spine and spinal canal during the first month of pregnancy (Melanie, 2018) Spina bifida is a serious neural tube defect that is common from birth and may require multiple surgeries due to spinal cord exposure. (Pimentel, 2021).

In the words of Jauffret (2006) When we talk about spina in this context, we refer to the spinous process of a vertebra, and bifida something divided into two parts. This specific term describes the condition of the vertebrae affected by spina bifida. Generally, these are located in the lumbosacral region. However, occasionally, vertebrae located in other cervical areas can also be affected. This condition manifests not only with paralysis and alterations in sensitivity, mainly in the lower limbs, but also in the function of the bladder and rectum and the development of hydrocephalus is common in these individuals. Stephen (2023) Meningocele, on the other hand, tends to be less severe. However, this condition can also bring challenges, which vary depending on the size and location of the meningocele.

The diversity in the range of intelligence and motor abilities of people with spina bifida, according to the Foundation for Love (2020) The severity of spina bifida can vary. They claim that spina bifida can cause significant damage to daily life, including loss of sensitivity and muscle weakness affecting mobility and sensations. In addition, it can induce the development of precocious puberty and hormonal disorders, the causes of which are still being investigated. This condition also affects learning and can alter intellectual capacity, presenting memory and organization problems, together with incontinence, due to muscle weakness in the bladder and intestines; all of which deteriorates the quality of life of people who suffer from it. Studies of Contreras (2019) He stressed that this is a highly complex situation for all those who suffer from this condition.

When analyzing the statistical data regarding its incidence, it is important to highlight that in the United States, according to the Centers for Disease Control and Prevention (CDC, 2023) 1,427 babies are reported to be born with spina bifida, which represents one case for every 2,758 births. An analysis of data collected by 12 state birth defect tracking programs shows significant results. Among the different ethnic and racial groups, Hispanic women have the highest risk, they are more likely to give birth to children with this condition compared to non-Hispanic white and non-Hispanic black women. The prevalence of spina bifida is 3.80 cases per 10,000 births in the Hispanic community, 2.73 in the non-Hispanic black or African American community, and 3.09 in the non-Hispanic white community. In Mexico, this condition affects approximately 9.2 of every 100,000 newborns. It is a leading cause of neurological, cognitive and motor disability in these individuals. (Lara-Ávila et al., 2022).

A recent study analyzed 1,505 newborns to determine the incidence of spina bifida, finding that 416 individuals had this condition. Of these, 26.45% were closed cases and 1.2% were open, highlighting the relevance of the condition in the neonatal population. (Coronas et al., 2022).

In Ecuador, statistics are imprecise. Even so, in 2021, Ministry of Public Health (MSP, 2022) documented 1,070 cases of spina bifida, which highlights the prevalence of the condition and the need to seek alternatives from the educational context to respond to these cases.

In light of what has been pointed out in the Ecuadorian context, the constitution highlights the importance of educational inclusion, focusing on both structural and methodological aspects. (National Constituent Assembly, 2008) The General Regulations of the Organic Law on Intercultural Education complement this approach (Constitutional Presidency of the Republic, 2023) Both regulations promote curricular adaptability and flexibility, prioritizing the appreciation of diversity, according to the Ministry of Education of Ecuador. In the educational field, especially in Physical Education, important challenges arise to achieve the process of inclusion of these students within the class, which will

depend on the level of affectation that is presented. In this order, the previous studies highlight the importance of adopting a more active and integrative approach in Physical Education. Students must go beyond passive and supporting roles.(Hernández Vázquez et al., 2021), hence the importance of considering it a priority to develop inclusive and effective strategies in physical education; these must be designed considering the individual needs of each student.

*General principles of meningocele. Etiology. Classification and characteristics of the types of spina bifida*

Spina bifida arises from a complex interaction between genetic and environmental factors. Although its etiology remains unknown, a multifactorial origin is recognized. Factors include deficiencies such as folic acid or vitamin B9 deficiency. The risk increases significantly if there are previously affected relatives, especially in a second or third child. In addition, exogenous environmental factors, such as geographical location, also influence. Prevention plays a crucial role, highlighting the importance of consuming folic acid before conception as an essential preventive measure.(Stephen, 2023;Monastery, 2016).

Regarding the history of meningocele and spina bifida, there is a constant evolution in the understanding and management of these conditions. Advances in surgical techniques and treatments have significantly improved both the survival rate and the quality of life of patients.(Calderon-Velasco, 2022).

*Classification and characteristics of types of spina bifida*

The World Health Organization (WHO, 2015)categorizes spina bifida into different variants, each with its own characteristics. These are detailed in Table 1, providing a clear framework for understanding and diagnosing this condition. This classification approach improves the identification of the form of spina bifida in each patient and directs towards optimal treatment and management strategies for each case.



**Table 1***Types of spina bifida*

Spina Bifida Classes	Description	Key Features
Meningocele	Formation of a protruding sac through a defect in the spinal column, composed of the meninges.	Sac filled with cerebrospinal fluid. Does not include the spinal cord. It may contain elements of the nervous system.
Meningomyelocele	Condition in which both the meninges and the spinal cord herniate through an opening in the spinal column.	Increased vulnerability. It compromises neural protective barriers and bone structure.
Myelocele	Direct exposure of the spinal cord to the external environment, due to the absence of protective covering by membranes or skin.	Exposed and unprotected spinal cord. Lack of protective coverage.

**Fountain:**WHO (2015)

Jauffret (2006) suggests a complementary classification for spina bifida. This is divided into four variants. These categories are presented in Table 2, providing a clear and structured view of the diversity and complexity of this condition.

**Table 2***Types of spina bifida*

Type of Spina Bifida	External Visibility	Neurological involvement	General Forecast
Occult Spina Bifida	Not visible	Minimal or no bone abnormalities possible	Well
Spina Bifida Cystica (Meningocele)	Visible (cystic sac without direct nervous tissue)	Neurologically it is usually normal	Relatively favorable
Open Spina Bifida (Myelomeningocele)	Visible, open skin exposing vertebrae	Severe (hydrocephalus, cognitive impairment, Chiari type II malformation, incontinence, paraplegia)	Severe, requires specialized management
Spina Bifida with Intra-spinal Lipoma	It may be invisible or form a herniation.	It varies depending on the location and size of the lipoma.	Varies according to surgical complexity and neurological involvement

**Fountain:**Jauffret (2006)

### *Challenges, adaptations and inclusive education*

Individuals with meningocele may face a variety of limitations, including weakness or paralysis in the legs and difficulties with bladder and rectal function. In addition, orthopedic complications, such as scoliosis and kyphosis, may occur. These challenges require ongoing medical care and adaptations in daily life.(Llamas, 2022).

The severity of the consequences associated with spina bifida varies depending on the level of injury to the spine. They may experience cognitive challenges and motor difficulties, problems with urinary and bowel control, among others. Precocious puberty, cryptorchidism, obesity, and latex allergies are often present, which is why the education of children with meningocele must be adaptable and flexible, focused on their specific needs. In these cases, adjustments in the school environment and teaching methods may be necessary, as well as support for the development of motor and cognitive skills.(Perez, 2012).

The United Nations Educational, Scientific and Cultural Organization(UNESCO, 2009), when referring to inclusive education, indicates that it requires efforts to improve the capacity of the education system to serve all students. It is considered a key strategy to achieve Education for All (EFA). This approach, which emphasizes education as a fundamental human right, seeks to promote a more equitable and just society. The initiative for inclusive education gained momentum in 1994. This breakthrough occurred during the World Conference on Special Needs Education, in Salamanca, Spain, in 1994.

Educational inclusion is essential,(English, 2014)She notes that it is key to adapt schools to the needs of all students, minimizing their isolation. This approach demands an institutional and classroom transformation, emphasizing the importance of creating inclusive learning environments through personalized plans and comprehensive supports. The goal is to ensure an educational space that not only accommodates, but also values diversity and promotes the integral development of each individual.

### *Strategies for the inclusion of students with meningocele in Physical Education*

Students with meningocele often encounter physical, social, and emotional barriers.Carbonero & Cañizares (2016), warn about the social and emotional risks of exclusion in physical activities, which affects not only the well-being of the student but also the social dynamics of the classroom. In light of the above, it is essential to develop adaptive strategies, together with the modification of the curriculum and the development of activities that promote inclusion and equity, hence the need to have teachers with achieved pedagogical and didactic skills, which allow them to respond to this diversity.English (2014)highlights the importance of collaboration between families and

schools, pointing out that it is key to addressing academic failure and providing care to all students, including those with meningocele.

According to previous literature, inclusion in physical education goes beyond simple adaptations for those considered "different." Its goal is not to exclude students with special needs, but to include them through individualized support. This authentic inclusion challenges the standard model. It promotes the appreciation of individual differences. This requires creating specific resources, and also implies diversifying student groups.(Blázquez, 2021).

Diversity in the classroom enriches education. It promotes essential values: respect, tolerance, solidarity.Borregon & Gimenez (2017)They point out that inclusive education seeks quality teaching adapted to each student. The exclusion of students with meningocele from Physical Education limits their practical, social and emotional development.Blazquez (2021)stresses the importance of physical education practice to acquire vital skills. Lack of participation restricts the development of physical skills. It also limits the benefits of exercise.

In this senseCarbonero & Cañizares (2016)They highlight the importance of Physical Education, arguing that it is crucial for the development of social skills and the promotion of inclusion. They agree with the previous authors in stating that excluding these students from these activities puts their emotional well-being and social cohesion at risk, which tends to reflect a disconnection in pedagogical praxis and contravenes the principles of educational justice. Likewise, it is considered essential to achieve the personalization of education, together with the adaptation of individual needs and the development of effective learning.

In this line of thought, it is important to consider that the inclusion of students with disabilities in Physical Education classes involves great challenges, for which the entire teaching staff must prepare to offer the different levels of support and assistance that students with disabilities get involved in, even in support roles.(Hernández et al., 2021).

*Teaching Strategies and Curricular Adaptations: A need for the inclusion of students with meningocele in physical education classes*

There are several authors who have made very valuable contributions related to the proposed definition and application of different teaching strategies aimed at improving the teaching-learning process; in this order it is important to consider the contributions of Rosales (2004) pointed out that in the educational context, strategies are those conscious, responsible and intentional actions that direct the teaching-learning process in a specific area of knowledge.



Taking this into account, other authors such as Ramon(2019), Ribadeneira(2020), Delgado and Haro(2022)Monteza(2022), which when defining the didactic strategies relate them to the procedures, techniques, system of actions and activities, which allow the teacher and the students to interact together to materialize the objectives of the class through the application of strategies that facilitate combining the teaching-learning process, this is why Ribadeneira(2020), talks about teaching strategies, defining these as the ways that teachers use for the teaching process, also explaining that learning strategies are related to the procedures that students use to recognize, learn and apply what they have learned, that is, they are the ways that students apply to learn.

Lleixà & González (2014) emphasize the need for inclusive pedagogical and didactic strategies in Physical Education. These strategies seek to involve all students, regardless of their abilities. They not only benefit students with disabilities, but also improve the participation of the entire student community. They promote an inclusive and respectful learning environment, encouraging diversity and enriching the collective experience.

This is why the teaching role goes beyond the simple transmission of knowledge. In the Physical Education class, the teacher's role must promote the development of values, physical, motor and social skills in an inclusive environment. Teachers not only teach, they also instill values and encourage the development of life skills in an inclusive environment that fosters the personal growth of each student.(González Arévalo, Carlos; Lleixà Arribas, Teresa, 2010).

In this sense, we share the opinion of the previous authors on the importance of maintaining an ethic that celebrates diversity and promotes social inclusion. This perspective is essential for the comprehensive development of students and the achievement of true inclusion in society.

Considering the above, it is important to understand that curricular adaptations are adjustments and modifications that are made to all elements of the curriculum with the aim of achieving the assimilation and inclusion of all students according to their own potential (Calderón et al., 2017). This process seeks to guarantee the accessibility and applicability of the curriculum to all, considering the particular circumstances of each student.(Garrido Landívar & Santana Hernández, 2009), point out that curricular adaptation in Physical Education is crucial to address diversity.

In Ecuador, curricular adaptations are designed to personalize teaching. They are aimed at students with Special Educational Needs (SEN). Their objective is to promote inclusion. This is achieved by modifying objectives, strategies and assessments. To implement this collaborative approach, the participation of several actors is essential. These include teachers and specialists. In addition, it is crucial to have the consent of parents. It is structured in three levels: national (macro), institutional (meso) and

individual (micro), addressing from general inclusion to specific adaptations through the District Inclusion Support Units (DIAC). SEN are divided into two categories: those associated with disabilities and those that are not. This broad spectrum ranges from sensory disabilities to high intellectual abilities. It also includes situations of social risk. The objective is to close academic gaps and support the comprehensive development of students. (Ministry of Education of Ecuador, n.d.-a).

In this theoretical approach, it is considered that, in the educational context, specifically in the Physical Education class, it is crucial to develop didactic strategies aimed at enhancing the inclusion process of students with special educational needs. Considering this, in an observation carried out in an Educational Unit in Santo Domingo, Ecuador, the presence of a 9th grade student with meningocele was confirmed, due to which he requires a process of personalized attention and the development of specific didactic strategies and adaptations within the class; however, it was found that the student remained excluded from the class, often doing theoretical work; the Physical Education teacher did not develop didactic strategies and curricular adaptations that favored the inclusion of the student within the class and consequently the teaching-learning process and the development of the student's cognitive and motor skills were affected.

In this context, an essential question arises: How to improve the inclusion of students with meningocele in Physical Education classes? This question guides our research, whose objective is: To design a teaching strategy for the inclusion of students with meningocele in Physical Education classes, thus ensuring their comprehensive and equitable development.

### **Methodology**

For the development of the research, a design was adopted pre-experimental, with a qualitative approach, descriptive and field nature, supported by theoretical methods such as: historical-logical, analytical-synthetic, inductive-deductive and modeling. Within the empirical methods, the research was based on observation and documentary review, together with techniques such as direct observation, interviews and documentary review; all of which facilitated the development of the research and the interpretation of results in the different phases of the research process.

For its development, the research was located in an Educational Unit of Santo Domingo, Ecuador; for this, a parallel of 9th grade was intentionally selected, made up of 33 students of both sexes, with an average age between 14 and 15 years, resulting jointly with the Physical Education teacher, a specialist from the Student Counseling Department (DECE) and 1 from the rehabilitation area and the parents the informant sample; while the analysis unit sample was made up of 1 student diagnosed with meningocele.

The organization followed during the research was structured in four phases: (Phase No. 1 Diagnosis of needs and potential, Phase No. 2. Design, Phase No. 3. Implementation and Phase No. 4 Validation), said organization initially allowed to obtain data of interest on the subject and the case object of study and in turn to propose the design of the intervention proposal, to later proceed with its implementation and validation.

Derived from this methodological procedure, the results obtained are summarized below:

*Phase No. 1. Diagnosis of needs and potential*

*1. Case characterization:*

To determine the status of the case, a documentary review, an interview with a DECE and rehabilitation specialist, and observation were used. This allowed the researchers to delve into the characterization of the student under study and summarize the most important aspects. The following can be noted:

A 9th grade student of General Basic Education, male, 16 years old, diagnosed with meningocele, which makes him considered a person with severe disability, classified and identified by means of an ID card with a 69% disability, according to the standards established by the health system, belonging to the Chachi community of Ecuador, he is the second to last of his siblings. Family conditions led his mother to leave her job, which has exacerbated the family's economic vulnerability.

It was found that his mobility was significantly affected due to his condition. The documentary review revealed that he was forced to remain in a wheelchair during his first years; this was recovered through the treatment and stimulation received in his lower extremities, using specialized equipment such as a bicycle, which is currently the means he uses to get from his home to the educational institution.

He entered the educational system late due to his diagnosis. The student's physical limitations limit his participation in activities such as physical education and recess. He has difficulties in developing his motor skills and abilities, as well as in performance and inclusion. However, his resilience in the face of adversity and interest in improving his performance are notable. All of the above indicates the need to adopt inclusive strategies that motivate inclusion and participation in class and in the rest of the institution's activities.

2. Results of the observation carried out on a physical education teacher and of the interviews applied to a rehabilitation specialist, a student under study, students in the course and parents. Table 3 shows the results of the initial and post-intervention phase of the proposal.

**Table 3***Results of the initial and post-intervention phase with the application of the proposal*

Instruments used	Aim	Initial result of the investigation	Final result of the investigation
Interview with a rehabilitation specialist	Understand the motor abilities, physical restrictions, and specific support needs of students with meningocele, in order to adapt physical activities and the school environment for their inclusion and effective participation.	To facilitate the inclusion of students with meningocele in physical education, several measures are essential. First, adapting the environment is crucial. In addition, specialized equipment must be used. It is also important to modify activities to suit their needs. Offering personalized support is essential. Finally, promoting social inclusion through education and ongoing assessment is indispensable.	They report that significant improvements were achieved in several areas. First, their participation increased. In addition, physical abilities were strengthened. In another aspect, self-esteem experienced growth. Also, social inclusion became more evident. Finally, interpersonal relationships were enriched.
Observation of Physical Education classes from the previous cycle	Identify the pedagogical strategies implemented for the inclusion of students with meningocele.	Initially, 5 classes were observed within the regularities. It was detected that the teacher failed to develop teaching strategies adapted to the student with meningocele. There was uncertainty and lack of knowledge about the adaptation of activities for the student. Preference for indicating activities and theoretical work for the student with meningocele. Limitations to create an inclusive environment within the PE class.	After the process of applying the proposed teaching strategy, it was found that the teacher has managed to implement specific strategies for the student, in the classes he managed to offer levels of help and adapt the activities that promote the improvement of the inclusion process within the class and the participation of all students. He recognized the value of the strategy and the adaptations to promote an inclusive environment within the PE class.
Student Interviews	Understand student perceptions of their progress and participation in PE classes.	The student expressed concern. He also showed a lack of confidence in his ability to participate in physical activities. This affected his self-esteem. He noted that on most occasions he was asked to do theoretical work, but did not participate in classes with the rest of the students.	The student was grateful and positive about the new approach to PE classes, highlighting that he already participates in classes with the rest of his friends, which makes him feel happy and confident because he knows what he can achieve with everyone's help.

**Table 3**

*Results of the initial and post-intervention phase with the implementation of the proposal (continued)*

Instruments used	Aim	Initial result of the investigation	Final result of the investigation
ObservationDirect and Participatory in Physical Education	Assess participation and facilitate inclusion of students with meningocele in physical education classes by identifying necessary adaptations and support required.	It is important to highlight that the student used a bicycle for his transportation. Initially, he showed a notable resistance and fear towards participating in Physical Education activities. This attitude was evident both in his resistance to getting involved in the proposed exercises and in his reluctance to leave the classroom. This set of factors significantly limited his inclusion and participation in classes.	The research culminated in the inclusion of the student in Physical Education classes, evidencing enthusiastic participation. This achievement is attributed to a combination of personalized adaptations and constant support, which not only facilitated his participation, but also led to significant improvements in his adaptation to the environment and his willingness to participate. These changes reflect a notable advance from his initial resistance to a complete and enthusiastic integration into physical activities.
Interview with classmates	To assess the level of acceptance and cooperation of peers towards the student with meningocele.	Peers showed little interest. In addition, they had limited knowledge about how to interact with their classmate. They acknowledged that they did not know how to support the student.	Classmates report having a greater understanding and proactive attitude towards inclusion and support for the student with meningocele. They explain that they feel happy to share with their friend and that they know how important their help is so that their friend can participate in class. They point out that they all like Physical Education.
Interview with parents.	Collect information on changes observed in the student at home, in terms of mobility, independence, and attitude toward physical activity.	Parents expressed concerns in two main areas. First, they pointed to limited mobility and second, they mentioned a low interest of the student in participating in physical activities. This lack of interest is attributed to two factors: fears and confidence.	Parents reported in the interview that they saw noticeable improvements in their child. These included an increase in interest in physical education class. They also noted that they noticed greater enjoyment in participating in physical activities.



As can be seen in the results shown in Table 3, there is a significant change between the results obtained in the first phase of the research process in relation to those found after the proposal was applied.

In the first part of the research, the need to develop a teaching strategy focused on carrying out an adaptation process that would allow improving the student's inclusion process within the Physical Education class was evident, which was given by the teacher's limitations to develop the specific teaching strategy and adapt the activities to be carried out in class and the student's own characteristics due to his condition, which often caused him concern, demotivation and lack of interest; to this was added the lack of knowledge of the rest of the students to treat their classmate and the fears present in their parents. All this caused the need to find a response in the pedagogical and didactic order focused on finding alternatives that would motivate a better performance and inclusion of the student within the class, thus moving on to the second phase of the research which consisted of the design of the proposal.

#### *Proposal*

*Qualification:* Teaching strategy for the inclusion of students with meningocele in physical education classes

*General Objective:* Facilitate the process of inclusion of students with meningocele in physical education classes, motivating their comprehensive physical performance.

#### *Specific Objectives:*

- ✓ Identify the specific educational and physical needs of the student with meningocele
- ✓ Develop personalized curricular adaptations that promote the participation of students with meningocele in physical education classes.
- ✓ Implement an inclusive teaching strategy that promotes social interaction and motor development for all students, including the case of meningocele.
- ✓ Promote safe participation within the Physical Education class.
- ✓ Adapt the activities to be carried out within the Physical Education class in such a way that it allows the participation and inclusion of all students, including the case that presents meningocele.
- ✓ Promote recognition and acceptance of everyone regardless of their existing condition or limitation

#### *Introduction*

The effective inclusion of students with meningocele in physical education classes requires specialized approaches due to their spina bifida condition. Although it presents fewer neurological risks than other variants, their integration into society and educational and work environments requires adaptations that promote equal opportunities and respect for diversity.

Educational inclusion, according to Borregón & Giménez (2017), is oriented towards improving teaching by adapting to student diversity and promoting values such as respect, tolerance and solidarity. This is particularly relevant in the field of Physical Education, where participation is essential for the social, emotional and physical development of students. For their part, Blázquez (2021) together with Carbonero & Cañizares (2016) highlight that excluding students, especially those with specific conditions such as meningocele, from physical activities not only restricts their development of essential skills and emotional well-being, but also puts social cohesion at risk. This situation highlights a worrying gap between pedagogical theory and practice that contravenes the principles of educational justice. This panorama underlines the urgency of personalizing education to respond to individual needs, guaranteeing effective and equitable learning for all.

The proposal made is based on the theoretical foundations raised by previous authors Ramon(2019), Ribadeneira(2020), Delgado and Haro(2022)Monteza(2022), pointing out that teaching strategies address a set of activities, resources, media, procedures and steps to follow to achieve the tasks to be achieved within the teaching-learning process, which includes all students. In accordance with the above the strategy The proposed didactic approach seeks to be effective in achieving the objectives of the Physical Education class and in turn to promote the inclusion of students with meningocele. It was structured in four key stages, essential to guide the research and its own design and implementation.

For this purpose, research by various authors has been consulted, such as: Maqueira et al. (2023), Muñoz et al. (2020), English (2014) In their paper, the authors present a comprehensive analysis of inclusion and curricular adaptations within the field of Physical Education, paying special attention to the needs of students with disabilities. They suggest a theoretical and practical framework designed to modify games and activities in a way that promotes inclusion from the principle of equal opportunities and equity. They underline the importance of creating a safe and inclusive environment within the classroom, in such a way that effective communication and an adaptation process supported by levels of support, adaptations of materials, resources, methodologies and forms of evaluation are fostered, all with the aim of promoting the development of a class based on a truly inclusive teaching strategy adapted for all students.

The exclusion of students with meningocele from Physical Education classes highlights a serious issue regarding equity and rights. This shows the urgency of adopting an inclusive education that values diversity, respect and solidarity. Such inclusion, which is supported by both local and international regulations, is key. It is vital to enrich learning and foster essential values. This ensures that every student has access to a high-quality education, appropriate to their particular needs. The absence of physical activity restricts the physical, social and emotional growth of students with meningocele. It deprives them of developing important skills and enjoying the benefits of exercise. This context underlines the need to implement inclusive strategies in Physical Education. Strategies that encourage valuable practical experiences and the advancement of social skills. However, there is a notable discrepancy between inclusive policies and their actual implementation. This is due to barriers such as lack of resources and inadequate preparation. It is essential to pay immediate attention to this situation. We must advocate for inclusive teaching methods and ensure that policies are translated into concrete actions. In this way, we will establish an educational environment that promotes respect, diversity and equality. An environment that allows each student to achieve their maximum potential.

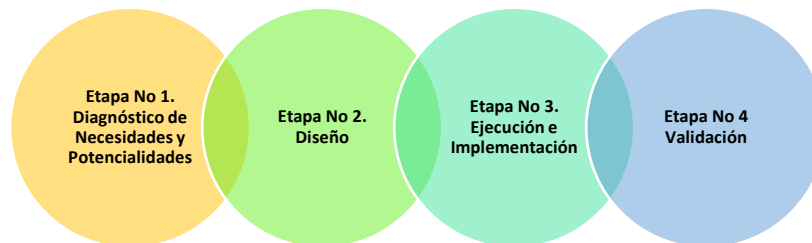
This strategy seeks to promote the recognition and acceptance of all students, regardless of their condition or limitation. It focuses on providing an alternative based on the curricular adaptation process that favors improving the motor skills of all students, including those with meningocele, and in turn, creating truly inclusive spaces within the Physical Education class. The aim is not only to adapt students to their particular circumstances, but also to provide them with tools to transcend these circumstances, overcome obstacles, and promote their independence and functionality.

All of the above allows us to respond to a current problem within Physical Education related to the inclusion process of students who have some type of disability or specific condition, hence justifying its feasibility and importance; precisely because it promotes a response to a real situation that occurs within the Physical Education class.

The research structure followed for the design of the proposal followed four stages (see the following figure 1).

**Figure 1**

*Research structure for the proposal design*



In the *Stage No. 1. Diagnosis of Needs and Potentials*, the current status of the inclusion process for students with meningocele in physical education classes was examined. To do so, various techniques were used that allowed us to obtain the initial result, including: interviews with a rehabilitation specialist: the student's motor skills and specific support needs were assessed; direct observation of physical education classes: the teaching strategy followed by the PE teacher during the classes was analyzed; interviews with parents: to gather information about their perception regarding their child's performance in the PE class. Interview with the student allowed us to understand the student's experiences and the effectiveness of the pedagogical strategies implemented. Interview with peers: to assess the level of acceptance and cooperation between students to promote an inclusive environment. The collection and analysis of this information provided a preliminary, but fundamental, understanding of the student's specific educational needs and the teacher's limitations in focusing on the inclusion process. The above made it possible to confirm the need to design the teaching strategy laying the foundations for the development of a personalized and effective educational intervention, with the aim of guaranteeing the inclusion process within the class.

In the *Stage No 2. The procedure was followed design*: After recognizing the needs and potential of the student with meningocele, the PE teacher and the rest of the students, the design of the proposal based on the didactic strategy began, which involved determining the actions and activities to be carried out, with emphasis on curricular adaptations, which according to Contreras (2019), the main purpose of these adaptations in the context of physical education is to promote progress and normalization of behaviors in students, offering them the necessary support to achieve psychological balance in the face of their personal challenges. Note Figure 2, which shows the logic followed to design the strategy.

**Figure 2**
*Structure of the proposal*


The foundations considered for the design of the teaching strategy include five fundamental pillars: first, the identification of the specific needs of the student; second, the development of personalized curricular adaptations; third, the use of a variety of assessment and adaptation tools that include verbal/auditory, visual, physical/tactile and psychological/clinical/educational supports; fourth, the adaptation of materials and tasks; and fifth, an assessment methodology focused on the individual throughout the educational process. It was structured into title, general objective, specific objectives, introduction, rationale, description, execution and validation of results.

Below is a summary of the actions considered as part of the teaching strategy.

**Table 4**
*Actions that make up the teaching strategy*

Diagnosis of potentialities and limitations of the case	Determining the topic, content, and objectives of the class	Planning activities to be developed at each moment of the class	Class development	Validation of results
<b>Actions</b>				
Case characterization	Based on the Physical Education Curriculum (Sports Practices Curriculum Block), Unit No. 5 is determined as the content of teaching Basketball	Lesson planning Determining the activities to be developed at each moment of the class	Execution of the activities, actions and adaptations planned in the planning process	Analysis and determination of results Development of the evaluation Feedback and planning of new actions



**Table 4***Actions that make up the teaching strategy (continued)*

Planning the adaptations to be made according to the content system, objectives and characteristics of the case.
Selection and adaptation of materials and resources
Determining the forms of assessment

**Table 5***Example of an outline for making curricular adaptations*

Element	Description
Type of Educational Need	The specific category of the student's special educational need (SEN) is identified (e.g. motor, sensory, cognitive). This is essential for determining the necessary adaptations.
Program Content	Details the specific physical activities, games, exercises, and sports practices planned for the session, adapted to be accessible and meaningful for all students, regardless of their individual abilities.
Levels of Help	<p>Verbal: Use of clear and adapted oral instructions.</p> <p>Auditory: Supports such as amplification systems or sign language interpretation.</p> <p>Visual: Adaptations as materials in accessible formats.</p> <p>Physics: Assistance or modifications for physical participation.</p> <p>Tactile: Use of resources that facilitate learning through touch. Psychological, Clinical, Educational: Emotional support, therapies or specific pedagogical strategies.</p>
Adaptations	<p>Materials: Modifications or alternatives to the resources used (e.g. balls with different textures).</p> <p>Tasks and Rules: Adjustments to activities or game rules to facilitate inclusion.</p>
Assessment	Adapted methods and criteria for assessing student progress and achievements, taking into account their individual needs and abilities. It should be fair and equitable, allowing the true development of the student to be reflected in the context of physical education.

**Fountain:**Maqueira (2005, 2006) andMaqueira et al.(2017,2023)

*Teaching Unit 5: We start playing basketball and create cooperative games.*

Skill: practicing different types of sports (collective), identifying similarities and differences between them, and recognizing modes of participation according to the sports

field (recreational), to consider the necessary requirements that allow you to continue practicing it Ref. EF.4.4.1 (Ministry of Education of Ecuador, 2016).

*Example of the curricular adaptation carried out*

Objective: to practice basketball in a collaborative and safe way, through teamwork to strengthen physical abilities and the process of inclusion within the class.

**Table 6**  
*Curricular adaptation*

TYPE OF EDUCATIONAL NEED OR DISABILITY	PROGRAM CONTENT	LEVELS OF HELP							ADAPTATIONS	
		VERBAL	AUDITORY	VISUAL	PHYSICS	TACTILE	PSYCHOLOGICAL, CLINICAL, EDUCATIONAL	MATERIALS	TASKS/RULES	ASSESSMENT
Meningocele: Physical Disability 69%  The student maintains autonomous mobility but faces challenges when walking, such as coordination and fatigue. He uses a bicycle to get around, without sensory difficulties, promoting learning and interaction, improving his quality of life.	We started playing basketball and created cooperative games.  <i>Dribbling</i>	Clear and concise instructions: Use simple and direct language. <i>Feedback</i> Constant verbal: Ensure that the student receives continuous auditory feedback to correct and improve their dribbling technique.	Incorporate music to improve the sense of rhythm.	Visual cues: Use colored cones or tape on the floor to indicate practice areas or specific paths. Demonstrations: Conduct detailed demonstrations before practice so that the student can visualize the correct technique.	Exercise adaptation: Modify exercises to allow for performance supported by a step, then with the help of a partner, reducing the demand on mobility.	Textured balls: Use balls with different textures to improve grip and tactile sensation while bouncing. Guided physical contact: Allow physical contact to guide movement if necessary, always with consent.	Positive Environment: Foster a supportive environment that promotes self-esteem and confidence. Realistic goals: Set achievable goals to motivate and avoid frustration. Adapted warm-up and cool-down exercises to prevent injuries. peer tutoring	Adapted equipment: Use lighter balls or balls of different sizes, and any other material that makes dribbling easier. Safe Environment: Ensure the practice space is free of obstacles, accessible and not too smooth. Cover shorter sections. Knee pads, elbow pads.	Rule simplification: Adapt the rules of the game to focus on developing specific dribbling skills, such as controlled dribbling and changing direction. Extended time: Allow more time for task completion.	Technique: Observation Instrument: Checklist: Result obtained at the end with the one shown at the beginning of the unit. Self-assessment. Peer assessment.

*Stage No. 3. Execution and implementation*

The implementation of the teaching strategy was located in Unit No. 5, specifically in the Curricular Block: Sports Practices, for which 10 classes were used with the 9th grade group, from the reference Educational Unit. Its execution included the development of the proposed teaching strategy with emphasis on curricular adaptations and cooperative games as a fundamental resource within the teaching strategy for teaching - learning basketball.

#### *Stage No. 4. Validation*

Validation of the proposalThe project was carried out in two stages: A first stage prior to its application through a consultation with a specialist. For this, the rector of the institution, 1 rehabilitation specialist and 1 Physical Education teacher with a Master's degree were consulted. The results of the specialist consultation positively validated the proposal, supporting its implementation. In a second stage, its execution in practice was carried out through a pedagogical experience carried out at theTeaching Unit 5,for 10 classes, for this purpose the Sports Practices Curricular Block was selected, in the which focused on the teaching strategy composed of curricular adaptations and cooperative gamesfor learning basketball. Once the teaching strategy was applied, the results were evaluated through direct observation and feedback from the teacher and participating students. To summarize these findings, we developed the evaluation indicators. The results can be seen in Table 7.

**Table 7**

*Evaluation of the teaching strategy*

<b>CRITERION</b>	<b>Completely</b>	<b>Partially</b>	<b>Does not contribute</b>
The teaching strategy contributes to the effective inclusion of students with meningocele.	100%		
TheTeaching strategy and proposed curricular adaptationsallow for safe participation by all students.	100%		
Modified activities maintain the essence and dynamics of the group, encouraging inclusion from the beginning.	100%		
Implementing the strategies promotes a safe environment and encourages effective communication.	100%		
Contributes to the development of professional skills of teachers in Inclusive Physical Education.	100%		
Facilitates the inclusion process of all students with special educational needs in the Physical Education class.	100%		
The perception of legal representatives or parents regarding the contribution of the strategy to the inclusion and care of their children.	95%	5%	

#### **Discussion**

The results obtained are aligned with the theoretical-practical background related to the inclusion process within the Physical Education class through the development of didactic strategies that motivate the inclusion and participation of all students, including those with educational needs associated or not with a disability, these are articulated with the contributions ofLleixà & González (2014)who emphasize the importance of developing

inclusive teaching strategies in the Physical Education class to promote active and equitable participation of all students. Likewise, in the studies of Contreras (2019) it is mentioned that curricular adaptations constitute a very valuable teaching strategy for the inclusion process of students with disabilities. Likewise, Garrido & Santana (1993) along with Maqueira (2006), underline the need to make specific curricular adaptations, highlighting their essential value for the effective inclusion of students with meningocele in these educational activities.

The findings of the diagnostic phase highlight the importance of adopting an inclusive approach for all students in the class, including those with meningocele. The diagnosis made evidenced the need to implement a teaching strategy that allows for a response to the inclusion process and that in turn contributes to the comprehensive physical development of the student under study.

Taking this into account, it is possible to design, execute and validate a teaching strategy based on five key pillars: precise identification of needs, personalization of curricular adaptations, development of various evaluation tools, adaptation of materials and tasks, and the application of evaluation methodologies focused on the individual, being validated by specialist criteria and the pedagogical experience developed during 10 classes for its feasibility, relevance and scientific novelty.

On the other hand, in the case at hand, there was a student with meningocele, who at the beginning showed insecurity, fear and little motivation and who, given the benefits of the developed strategy, was able to be included in the Physical Education class, thus contributing to his comprehensive development. In this regard, it is important to highlight that the strategy allowed to improve the inclusion process within the class and in turn facilitated the development of adapted physical activities through collaborative games.

### Conclusions

- The research carried out provides a solution to the problem under study; it provides a teaching strategy for the inclusion of students with meningocele in Physical Education classes; it is based on five dimensions and on the development of actions, curricular adaptations and collaborative games within the class, these characteristics allowing to validate its feasibility and scientific novelty.
- The implementation of the proposed teaching strategy in practice demonstrated its relevance and contribution to being recognized as a viable alternative to be considered to improve the inclusion process and the comprehensive development of students with meningocele.

### Conflict of interest

The authors declare that there is no conflict of interest in relation to the submitted article.

*Bibliographic References*

- National Constituent Assembly. (2008). Constitution of the Republic of Ecuador. Legislative Decree 0, Official Register 449 (20-Oct-2008). Last modification: 13-Jul-2011. Status: In force. <https://www.gob.ec/sites/default/files/regulations/2020-06/CONSTITUCION%202008.pdf>
- Blázquez, D. (2021). Discover what physical education is like in the 21st century; this is how the most innovative teachers work. INDE Publishing House. [https://elibro.net/es/ereader/ube/174757?as\\_all=Discover\\_c%C3%B3mo\\_es\\_la\\_educaci%C3%B3n\\_f%C3%ADsic%E2%80%A6&as\\_all\\_op=unaccent\\_icontains&prev=s](https://elibro.net/es/ereader/ube/174757?as_all=Discover_c%C3%B3mo_es_la_educaci%C3%B3n_f%C3%ADsic%E2%80%A6&as_all_op=unaccent_icontains&prev=s)
- Borregón, S., & Giménez, S. (2017). Inclusion and educational system. <https://elibro.net/es/ereader/ube/153541?page=23>
- Calderón Guevara, CM, Ron Barahona, VM, Caicedo Mantilla, GF, & Maqueira Caraballo, G. de la C. (2017). Methodological guidelines for the development and implementation of curricular adaptations: a response to diversity. Readings: Physical Education and Sports (EFDeportes.com), Digital Magazine, 22(232), 1-8. <http://www.efdeportes.com/>
- Calderón-Velasco, R. (2022). Spina bifida. Diagnosis, 61(3), e319. <https://doi.org/10.33734/diagnostico.v61i3.390>
- Carbonero Celis, C., & Cañizares Márquez, JM (2016). Educational sport: its teaching at school age. Wanceulen Editorial. <https://elibro.net/es/ereader/ube/63431>
- Centers for Disease Control and Prevention [CDC]. (2023, October 24). spina bifida data and statistics | CDC. <https://www.cdc.gov/ncbddd/spinabifida/data.html>
- Contreras Jordan, Onofre R. (2019). Physical education teaching. A constructivist approach. INDE Publishing House. <https://books.google.es/books?id=pFpdIfg130IC&printsec=frontcover#v=onepage&q&f=false>
- Turmo Crowns, S., Comet Cepero, B., Thick Ambroj, N., Saiz Ferrer, TO., & Blasco Perez, N. (2022, March 15). Spina bifida. Special article. *Health Research Journal*, 3(3). <https://revistasanitariadeinvestigacion.com/espina-bifida-articulo-monografico/>
- Cruz Llamas, H. (2022). Neuropsychological intervention from the historical-cultural paradigm in a child under 10 years of age with myelomeningocele: a single case



- study [Master's thesis, Benemérita Universidad Autónoma de Puebla, Puebla, Mexico]. <https://hdl.handle.net/20.500.12371/16908>
- Delgado, R.L., & Haro, A.E. (2022). Guiding teaching strategy for text analysis in students with special educational needs in the Higher Basic Education sublevel. *Mikarimin Journal*, 8, 119-132. Retrieved from <https://revista.uniandes.edu.ec/ojs/index.php/mikarimin/article/view/2846/2190>
- Spanish, CP (2014). Inclusion in physical and sports activity. Paidotribo Publishing House. <https://elibro.net/es/ereader/ube/116262>
- Foundation for Love. (2020). Spina Bifida. <https://fundacionporamor.org/espina-bifida/>
- Garrido Landívar, J., & Santana Hernández, R. (1993). Curricular adaptations: guide for primary and special education tutor teachers. Editorial CEPE Preschool and Special Education Sciences. <https://dialnet.unirioja.es/servlet/libro?codigo=67367>
- González Arévalo, C., Lleixà Arribas, T. (coords.), Casamort, J., Chavarría, X., & Devís, J., (2010). Physical education. Disciplinary training complements. GRAÓ Editorial. <https://es.scribd.com/document/606835297/EDUCACION-FISICA-Complementos-de-formacion-disciplinar>
- González Arévalo, C., & Lleixà Arribas, T. (2014). Didactics of physical education. GRAÓ Editorial. <https://dialnet.unirioja.es/servlet/libro?codigo=436983>
- Hernández Vázquez, FJ, Bofill Ródenas, A., & Niort, J. (2021). Inclusion in physical education: the keys to success for the inclusion of students with different abilities. INDE Publishing House. <https://elibro.net/es/ereader/ube/174789>
- Jauffret, E. (2006). Spina bifida. *EMC - Kinesitherapy - Physical Medicine*, 27(3), 1-24. [https://doi.org/10.1016/S1293-2965\(06\)47101-2](https://doi.org/10.1016/S1293-2965(06)47101-2)
- Open spina bifida. Diagnosis, prognosis, and options for intrauterine correction by open and fetoscopic fetal surgery. *Gynecology and Obstetrics of Mexico*, 90(1), 73-83. <https://doi.org/10.24245/gom.v90i1.5754>
- Maqueira Caraballo, G., (2006). Curricular adaptations in physical education. An experience in children with strabismus and amblyopia. *Action: Cuban Journal of Physical Culture*, (3), 55-62. [https://books.google.com.ec/books/about/Las\\_adaptaciones\\_curriculares\\_en\\_la\\_Educ.html?id=y5WcAQAACAAJ&redir\\_esc=y](https://books.google.com.ec/books/about/Las_adaptaciones_curriculares_en_la_Educ.html?id=y5WcAQAACAAJ&redir_esc=y)

- Maqueira Caraballo, G., Recalde Ayona, A., Bonifaz Arias, I.G., Aguilar Chasipanta, W., Álvarez Zambonino, EE, & Sánchez Espinoza, O.F. (2017, February). Diversity, integration and inclusion to pedagogically improve physical education classes. *Readings: Physical Education and Sports, Digital Magazine*, 21(225). <https://www.efdeportes.com/efd225/diversidad-integracion-e-inclusion-para-educacion-fisica.htm>
- Maqueira Caraballo, G., de la C. (2005). Study of psychomotor development, social-family climate and curricular adaptations in physical education of minors with strabismus and amblyopia, before their inclusion in general education [PhD thesis, University of Granada, Granada, Spain]. <https://digibug.ugr.es/bitstream/handle/10481/744/15519302.pdf?sequence=1&isAllowed=y>
- Maqueira Caraballo, G. de la C., Guerra Iglesias, S., Martínez, R.I., & Velasteguí López, E. (2023). Inclusive education: challenges and opportunities for school institutions. *Journal of Science and Research*, 8(3), 210–228. <https://revistas.utb.edu.ec/index.php/sr/article/view/2933>
- Melanie Re. (2018). Meningocele: Causes, Symptoms, and Treatment. *onsalus.com*. <https://www.onsalus.com/meningocele-causas-sintomas-y-tratamiento-21208.html>
- Ministry of Education of Ecuador. (2013). Work guide for curricular adaptations for special and inclusive education. <https://educacion.gob.ec/wp-content/uploads/downloads/2019/05/Guia-de-adaptaciones-curriculares-para-educacion-inclusiva.pdf>
- Ministry of Education of Ecuador. (2016). EGB and BGU Physical Education Curriculum. <https://educacion.gob.ec/wp-content/uploads/downloads/2016/08/EF-completo.pdf>
- Ministry of Public Health. (2022, November 22). Spina bifida can be prevented from the womb – Ministry of Public Health. <https://www.salud.gob.ec/la-espina-bifida-se-puede-prevenir-desde-el-vientre/>
- Monasterio, A. (2016, January 18). Etiology and types of spina bifida. *Physiotherapy Blog*. <https://www.blogdefisioterapia.com/etiologia-y-tipos-de-la-espina-bifida/>
- Monteza, D. (2022). Teaching strategies for creative thinking in high school students: a systematic review. *Innova Education Journal*, 4(1), 120-134. Retrieved from <https://revistainnovaeducacion.com/index.php/rie/article/view/406/521>

- Inclusive Physical Education for People with Disabilities. Editorial Ministry of Cultures, Arts and Heritage of Chile.  
[https://www.researchgate.net/publication/344901296\\_Manual\\_de\\_Educacion\\_Fisica\\_Inclusiva](https://www.researchgate.net/publication/344901296_Manual_de_Educacion_Fisica_Inclusiva)
- United Nations Educational, Scientific and Cultural Organization [UNESCO]. (2009). Guidelines on inclusion policies in education—UNESCO Digital Library.  
[https://unesdoc.unesco.org/ark:/48223/pf0000177849\\_eng](https://unesdoc.unesco.org/ark:/48223/pf0000177849_eng)
- World Health Organization (WHO), Centers for Disease Control and Prevention (US), & International Clearinghouse for Birth Defects Surveillance and Research. (2015). Surveillance of congenital anomalies: A handbook for programme managers.  
[https://iris.who.int/bitstream/handle/10665/177241/9789243548722\\_eng.pdf?sequence=1](https://iris.who.int/bitstream/handle/10665/177241/9789243548722_eng.pdf?sequence=1)
- Pérez Rodríguez, María Dolores (coord.). (2012). Comprehensive care for disabilities. ICB Editores.  
<https://www.digitaliapublishing.com/viewepub/?id=109383>
- Pimentel Herrezuelo, E. Carlota. (2021). *Dental management of the pediatric patient with spina bifida and latex allergy*. *Odous Scientific*, 22(1), 1315-2823.  
<http://servicio.bc.uc.edu.ve/odontologia/revista/vol22n1/art06.pdf>
- Constitutional Presidency of the Republic. (2023). General Regulations of the Organic Law on Intercultural Education, Standard Number: 675. Publication date: 2023-02-22, Official Registry Supplement. Status: Current Publication number: 254.  
<https://educacion.gob.ec/wp-content/uploads/downloads/2023/03/reglamento-LOEI-2023.pdf>
- Ramón, TB (2019). The fable as a teaching strategy to promote inclusive education. Degree thesis, University of Pamplona, Pamplona. Obtained from [http://repositoriodspace.unipamplona.edu.co/jspui/bitstream/20.500.12744/3669/1/Ramon\\_2019\\_TG.pdf](http://repositoriodspace.unipamplona.edu.co/jspui/bitstream/20.500.12744/3669/1/Ramon_2019_TG.pdf)
- Ribadeneira, FM (January-February 2020). Teaching strategies in the educational process of the rural area. *Conrado Magazine*, 16(72). Obtained from [http://scielo.sld.cu/scielo.php?pid=S1990-86442020000100242&script=sci\\_arttext](http://scielo.sld.cu/scielo.php?pid=S1990-86442020000100242&script=sci_arttext)
- Rosales, A. (2004). Teaching or teaching intervention strategies in the area of physical education. *Physical Education and Sports. Revista Digital*, 75, 1–5.
- Stephen J. Falchek. (2023). Spina bifida. MSD Manual Professional Version.  
<https://www.msmanuals.com/es->

[es/professional/pediatr%C3%ADa/anomal%C3%ADas-cong%C3%A9nitas-del-sistema-nervioso/espina-b%C3%ADfida](#)

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