# New Mexican school and healthy life: physical activity and sports in Sonora

# Nueva escuela mexicana y vida sana: actividad física y deporte en Sonora

CATALÁN-DIBENE, Ernani Francesco†, ESPINOZA-ROMERO, Migdelina Andrea and CRUZ-CASTRUITA, Rosa María\* and LÓPEZ-GARCÍA, Ricardo

ID 1st Autor: Ernani Francesco / ORC ID: 0000-0002-5830-6294, CVU CONAHCYT ID: 924980

ID 1st Co-author: Migdelina Andrea, Espinoza-Romero / ORC ID: 0000-0002-5110-3662, CVU CONAHCYT ID: 413153

ID 2<sup>nd</sup> Co-author: *Rosa María*, *Cruz-Castruita* / **ORC ID**: 0000-0001-6013-7541, **Researcher ID Thomson:** A-9664-2019, **PubMed Autor ID**: castruita@orcid, **CVU CONAHCYT ID**: 095242

ID 3<sup>rd</sup> Co-author: *Ricardo, López-García* / **ORC ID:** 0000-0002-4001-0508, **Researcher ID Thomson:** 5-4582-2018, **CVU CONAHCYT ID:** 432849

**DOI**: 10.35429/EJRG.2023.17.7.1.11 Received: July 10, 2023; Accepted December 30, 2023

### Abstract

Objective: to describe the methodology that was carried out for the design of the project "Physical Activity and Sport in Educational Extension" and the characteristics of body composition, physical capacity, basic movement patterns and sense of belonging of the students. first, second and third grade schoolchildren attached to a federal elementary school of the Secretary of Public Education of the state of Sonora, in Mexico to participate in the project. The sample consisted of 95 boys and girls from third to sixth grade with an age between 6 and 12 years. Prior to the implementation of the project, an evaluation of body composition, physical capacity, basic movement patterns (BMP) and sense of belonging was carried out. Results: 17.9% (f = 17) are overweight and 14.7% (f = 14) are obese. The data showed that 24.3% (f = 26) sleep the recommended hours. The physical and sports activity that they perform the most is running (31.6%; f = 30). Contribution: The results obtained will help in the planning, redesign, action and control in the contents of the projects of the Physical Education teachers in Educational Extension associated with the project.

## Education, Physical activuty, Body composition

### Resumen

Objetivo: describir la metodología que se llevó a a cabo para el diseño del proyecto "Actividad Física y Deporte en Extensión Educativa" (AFyDEE) y las características de composición corporal, capacidad física, patrones básicos de movimiento (PBM) y sentido de pertenencia de los escolares de primero, segundo y tercer grado adscritos a una primaria federal de la Secretaría de Educación Pública del estado Sonora, en México a participar en el proyecto AFyDEE. La muestra fue de 95 niños y niñas de tercero a sexto grado con una edad de entre los 6 a los 12 años. Previo a la implementación del proyecto AFyDEE se llevó a cabo una evaluación de la composición corporal, capacidad física, patrones básicos de movimiento (PBM) y sentido de pertenencia. Resultados: un 17.9% (f = 17) presentan sobrepeso y un 14.7% (f = 14) obesidad. Los datos mostraron que el 24.3% (f = 26) duermen las horas recomendadas. La actividad física y deportiva que más realizan es correr (31.6%; f = 30). Contribución: Los resultados obtenidos ayudarán en la planeación, rediseño, acción y control en los contenidos de los proyectos de los profesores Educación Física en Extensión Educativa asociados con el proyecto AFyDEE.

# Educación, Actividad física, Composición corporal

**Citation:** CATALÁN-DIBENE, Ernani Francesco, ESPINOZA-ROMERO, Migdelina Andrea and CRUZ-CASTRUITA, Rosa María and LÓPEZ-GARCÍA, Ricardo. New Mexican school and healthy life: physical activity and sports in Sonora. ECORFAN Journal-Republic of Guatemala. 2023. 8-17:1-11.

<sup>\*</sup> Author's Correspondence (E-mail: betty\_sarabia\_alcocer@hotmail.com)

<sup>†</sup> Researcher contributing first author.

### Introduction

This paper presents the methodology used for the curricular design of the project "Physical activity and sport" based on the @ that it has in the formative projects developed and implemented in educational contexts.

The objective of the NEM is the integral human, human development of the learner and from this point, it reorients the National Education System as a whole, impacting the educational culture through co-responsibility and the promotion of social transformations within two contexts: the school and the community, in order to obtain the maximum achievement in the adolescents and young people of our country. It is important to mention that the NEM is based on fundamental principles, such as the following It is important to mention that the NEM is based fundamental principles, such as promotion of patriotic love, appreciation for their culture, knowledge of their history and commitment to the values embodied in the Constitution. In addition to civic principles, it also supports the fundamental rights of human beings, taking into account the beliefs, traditions and culture that give each human being the ability to reflect on himself (UNESCO, 1982). The values that are promoted from this model are the essential ones, highlighting honesty, respect, justice, solidarity, reciprocity, loyalty, equity, gratitude, among others.

In relation to the articulating axes that make up the New Mexican

In relation to the articulating axes that make up the New Mexican School, the one that primarily underlies the design of this project is the seventh, Healthy Life; under this axis, this project is oriented towards physical activity and sport in student life, as well as in the relationship and the impact they have, not only in the school context, but also in the family and social context, and above all, in the community to which they are part of.

Excellence in education, placing children, adolescents and young people at the center of education, prioritizing the human and integral development of the learner, reorienting the National Education System to influence the educational culture through co-responsibility and the promotion of social transformations within the school and in the community.

In order to obtain the maximum learning achievement in students, the NEM specifies that learning activities are not the main responsible for the formation of the cognitive structures of the subjects, but the appropriation of the cultural baggage product of the human historical processes that are transmitted in the educational relationship. Therefore, the construction that each child and adolescent makes on their representations of reality, through actions, strategies, dialogues, materials and tools that have a historical and social development and meaning, is fundamental (SEC,2019).

The dominant position of learning based on Piaget's genetic theory in 1984, states that the development of the subject takes place according to different stages or evolutionary stages, in which the student has an active role in the development of his or her knowledge structures, from the adaptation to new stages, in which mechanisms of assimilation of new knowledge to the previous structures operate, said by Piaget: "development is, therefore, in a certain way a progressive balancing, a perpetual passing from a state of lower equilibrium to a state of higher equilibrium" (38).In contrast evolutionary approach, Vygotsky proposes that it is development that follows learning, since the latter creates an area of potential development, stimulates and activates internal processes within the framework of various interrelationships that become new internal structures. Therefore, it does not matter whether a child has passed from the symbolic stage to a preoperational stage, but what is fundamental is to define how each cultural and historical subject of the child is developing.

Cultural and historical subject of these. It is reasonable for the school to value the ideas, meanings and intentions that shape the social and material structure of the community where educational processes take place. From this perspective, learning in basic education creates an area of potential development of the subjects in their particular context and condition; it also stimulates and activates internal processes through diverse historical, social, cultural, economic and educational interrelationships, within the framework of the community-territory. Considering the above, the NEM is based on seven articulating axes:

- 1) Inclusion
- 2) Critical Thinking
- 3) Critical interculturality
- 4) Gender equality
- 5) Reading and Writing Promotion
- 6) Aesthetic education
- 7) Healthy living

The "Healthy life" proposal, as an articulating axis of basic education, plays a relevant role in two ways.

The "Healthy life" proposal, as an articulating axis of basic education, plays a relevant role in two ways: on the one hand, contributing to the learning of healthy ways of taking care of the body, and on the other hand, promoting forms of symbiotic relationship between the community life of human beings and the natural environment in which they live (SEP, 2022). In addition to the above, "Healthy life" cannot be understood only on the margin of good living in community, but also as an education that guides children and young people to take responsibility for others, for others, for their community, that does not seek individual self-realization as its highest aspiration, but in their ability to treat ethically the other members of the community, to show solidarity and take responsibility for their needs and wants, allowing them to seek within themselves the realization as social, political, economic and cultural subjects, is what will allow fostering and deepening practices and thoughts oriented to healthy living in community.

The "Healthy life" axis promotes an education that makes visible from childhood the importance of the processes of health, disease, care and social determinants of health in the community.

Social determinants of health in the school community" (SEP, p. 115, 2022).

Healthy Lifestyles and Physical Education: Physical Activity and Health, Benefits of Physical Exercise

Healthy lifestyles according to Amau et al., 2021 and Urrea-Cuéllar et al., 2021. define a healthy lifestyle as a healthy lifestyle as the result of a series of habits that allow "a state of complete physical, mental and social well-being". This involves issues such as nutrition, physical exercise, disease prevention, work, relationship with the environment, adequate rest, recreation and social activity.

It is important to highlight that a good healthy lifestyle is one in which there is harmony and balance in their diet, physical activity, healthy sexual life, safe driving, stress management, intellectual capacity, recreation, especially outdoors, rest, hygiene, social-emotional skills, good interpersonal relationships, as well as the relationship with the environment, among others.

## According to the Ministry of Education

Pública (SEP, 2017) in the key learning for comprehensive education, reference is made to Physical Education as a form of pedagogical intervention that contributes to the integral formation of girls, boys and adolescents by developing their motor skills and integrating their corporeality. To achieve this, it motivates the realization of diverse motor actions, in a dynamic and reflexive process, based on didactic strategies derived from motor play, such as corporal expression, sports initiation and educational sports, among others. It constitutes the curricular space in the school that mobilizes the body (corporeality and motor skills) and allows the promotion of a taste for physical activity.

As an eminently practical area, it provides learning and experiences to recognize, accept and care for the body; to explore and experience capacities, abilities and skills; to propose and solve motor problems; to use creative potential and strategic thinking; to assume values and to acquire movements.

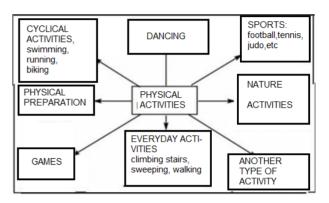
To acquire movements. Similarly. Pastor, Brunicardi and Arribas et al., (2016), establish three main purposes in physical education as specific curricular aspects in the universal, compulsory and public education system: 1) Physical-motor development.

Physical culture of students; and 3) Global and integral development of students within PA are: 1) Preventive; 2) Effect on the quality of life or well-being; and 3) Functional rehabilitation. In addition to the above, PA has physical and physical-sports practice genres (see Figure 1).

In addition, physical activity should be related to the general framework of education, in which participation, fun, creativity and the objective is the integral development of the person, and not only motor skills, are encouraged. That is why, it seeks to establish other multidisciplinary areas to reinforce from knowledge other curricular (Siedentop, Hastie, & Van der Mars, 2019). Around the nineties, 65% of the content of the physical education class was focused on playful sports, treating sport technique and outcome as a priority or (Thorpe, Bunker, & Almond, 1984). That is why sport within the subject of physical education is conceived from a formative approach as comprehensive teaching of sport or teaching games for understandings and even as sport education (Calderón, Hastie, & Martínez, 2011) worldwide.

The definition of physical activity (PA) is a human need for movement. It consists of the body manifesting movement within the environment. From the functional aspect, PA is triggered by any movement that involves muscular contraction and causes energy expenditure. Currently, it has been mentioned that physical practice is related to the biology and organism of the individual, so that PA manifests itself humanly in different areas, including the physical, psychological and social.

By way of example, on the physical level, it involves the use of bone levers that are mobilized by muscular contraction, ligaments and tendons. The social plane stands out because of the contact or interaction with other individuals during physical exercise and finally, in the social dimension, it is the use of the muscles, ligaments and tendons.



**Figure 1** Genres of physical activity *Source: (Gonzales, 2004)* 

Physical education and sport are variants of PA that stand out for their recognition and in relation to the above, the term exercise is a physical activity that varies in intensity from low to high, that is planned or structured and that includes repetitions. It is performed with the objective of acquiring or maintaining physical fitness (Biddle and Mutrie, 2008).

On the other hand, sport as such covers a range of activities that consider a set of range of activities that consider a set of rules and with a component of competitions (WHO, 2020). Involving physical activity by teams or uncivilized and are supported by an institutional framework, such as a sports agency. Physical activity and exercise increase the overall quality of life (Alvarez-Pitti et al., 2020). They prevent the manifestation of pathologies in healthy children and adolescents (5-17 years), and help in the treatment of prevalent NCDs in the child community. Therefore, if physical physical activity or exercise is medicine and sedentary lifestyle causes diseases. For this reason the Spanish Association of Pediatricians and health committee. In Table 1, we propose actions to improve health through physical activity or exercise. Improving global health:

| [                         | I _                        |
|---------------------------|----------------------------|
| Improves physical         | Improves motor             |
| condition                 | disability                 |
| Hormone modulation and    | Hypotonic                  |
| control                   | syndromes                  |
|                           | decrease                   |
| Hypertrophy and oxygen    | Decreases prevalence of    |
| consumption               | asthma, cancer and         |
|                           | depression                 |
| Decrease of adipose       | Decrease of                |
| tissue: obesity           | insulin resistance         |
| Improved risk of obesity- | Mental health and attitude |
| associated comorbidity.   | towards life               |
| Increases bone mass       | Benefits self-esteem       |
| and bone mineral          | and mood (anxiety and      |
| density: decreases        | depression).               |
| osteoporosis              |                            |
| Cardiorespiratory and     | Increases social           |
| metabolic benefits        | integration                |
| Improves lipid-           | Improves management        |
| allergenic profile        | of underlying diseases     |

**Table 1** Health benefits of physical exercise *Source: Information compiled from Álvarez-Pitti et al.*, (2020).

Therefore, the purpose of the present study is to describe the characteristics of body composition, physical capacity, basic movement patterns (BMP) and sense of belonging of first, second and third grade schoolchildren assigned to a federal elementary school of the Secretariat of Public Education of the state of Sonora, in Mexico to participate in the AFyDEE project.

### Methodology to be developed

The following is a description of the methodology for the design and implementation of the AFyDEE project, the population to be benefited, the criteria for the pre-selection of the participating schools, general descriptions of the Physical Education teachers previously assigned to these educational institutions, as well as general considerations. 6 to 12 years old. The selection of the elementary school for this first moment was considered only for being an active school and having more than 15 hours of educational outreach, that is, with face-to-face classes after the return to classrooms in the face of the COVID-19 pandemic, and with a Physical Education teacher with previously assigned educational outreach schedule (morning and afternoon hours) and located in the state capital.

Curriculum design for educational outreach

Within the framework of the AFyDEE project, as a product, each Physical Education teacher made a proposal according to the context and specific needs of his/her school community, in order to reinforce areas or skills through a school sport or recreational activities, such as soccer, handball, baseball, athletics and recreational physical activity, among others. Educational extension hours are granted only to teachers who have more than 30 hours or full time (in hours). Teachers with these job characteristics can develop their educational extension project in the following way:

- 1. Develop the project during non-teaching hours or in front of the group. in front of a group.
- 2. Use half of their teaching hours for the implementation of the educational extension project.
- 3. To delimit the age range or by phases (group) to serve the community during the to serve the community during the educational outreach project: lower elementary (1st to 3rd grade) and upper elementary (4th to 6th grade) or combined, depending on the project.
- 4. Select a physical activity or sport to meet the objective of the project.
- 5. Distribute the workload (days and hours) of the educational outreach. For example, 3 days a week; 1 hour, 2 days per week; 2 hours, 5 days per week; 1.5 or 2 hours.
- 6. Diversify hours for implementation of educational outreach. For example, 3:00 Pm to 4:00 Pm, 5:00 Pm to 6:00 Pm or 4:00 Pm to 6 Pm. The topics of each educational outreach project

The topics of each educational outreach project are varied, depending on the context in which the school is located and the

Physics that students not enrolled in the participating schools attend.

9. Approval of the project by the Undersecretary of Basic Education of the State of Sonora.

Basic Education of the State of Sonora.

ISSN-On line: 2414-8849 ECORFAN® All rights reserved. CATALÁN-DIBENE, Ernani Francesco, ESPINOZA-ROMERO, Migdelina Andrea and CRUZ-CASTRUITA, Rosa María and LÓPEZ-GARCÍA, Ricardo. New Mexican school and healthy life: physical activity and sports in Sonora. ECORFAN Journal-Republic of Guatemala. 2023

- 10. Meeting with sector heads and supervisors of the 15 pre-selected schools to inform
- 15 pre-selected schools to present Implementation Route of the AFyDEE project.
- 11. Extension of information on the Implementation Route of the "Physical Activity and Sports" project to school

Implementation of the "Physical Activity and Sports" project to school principals by supervisors.

- 12. Meetings with Neighborhood Committees, Social Participation Committees and Parent Associations.
- 12. Meetings with Neighborhood Committees, Social Participation Committees and Parents' Associations of pre-selected schools to extend the information of the project, request the filling out of non-responsibility letters for physical education teachers and collaboration to open/close schools during extension hours and supervision/accompaniment of the teacher and participants. In assembly, these actors made the decision whether or not to get involved in the AFyDEE project.

## 13. AFyDEE project banner

| Modalities              | Training                               |
|-------------------------|--|
|                         | Development of the body, motor         |
| Physical                | skills, gross and fine motor skills by |
| Education               | formative objectives.                  |
|                         | Movement, energetic                    |
| Physical Activity       | energy expenditure, prevention of      |
|                         | pathologies                            |
| Physical Activity       | Movement, leisure and                  |
| and                     | social recreation                      |
| Recreation              |  |
| Physical Activity       | Movement,                              |
| and                     | nutrition and body composition         |
| Nutrition               |  |
| Physical Activity       | Movement, sports psychology,           |
| and                     | decreases                              |
| <b>Emotional Health</b> | anxiety, stress and depression         |
| Physical Activity       | Movement and personal health           |
| and                     | through PA                             |
| Personal Hygiene        |  |
| Sports (baseball,       | Regulations, technical gesture,        |
| soccer, handball,       | values and competition.                |
| basketball,             |  |
| athletics or            |  |
| others)                 |  |

**Table 2** Curricular contents *Source: own elaboration (2022)* 

 $Guide lines\ for\ implementation$ 

The following logistical strategies were designed for the implementation of the program:

- 1. Detection of active schools in the state capital. Only active schools, i.e., with face-to-face classes after the return to school. after the return to the classroom in the face of the COVID-19 pandemic.
- 2. Screening of physical education teachers assigned with educational extension hours (morning and afternoon) (morning and afternoon schedule).
- 3. Exploration of educational outreach projects approved by state and federal physical education supervisions.
- 4. Diagnosis of civic and sports infrastructure
- 4. Diagnosis of civic and sports infrastructure and physical education teaching materials.
- 5. Redesign of the educational outreach program in coordination with the education supervisors.

A total of 50 elementary schools at the state and federal level were screened, leaving only one federal school selected by physical education supervisors, and the pre-selection of elementary schools was sent to Infrastructure Evaluation to verify the facilities and sports materials and make a final selection.

Before starting: Pretest

In the first evaluation prior to the implementation of the AFyDEE project, an assessment of body composition, physical capacity, basic movement patterns (BMP) and sense of belonging was carried out. The results obtained in the pretest will help in the planning, redesign, action and control in the contents of the projects of the Physical Education teachers in Educational Extension associated with the AFyDEE project.

The tests and measurements for this project are:

ISSN-On line: 2414-8849 ECORFAN® All rights reserved.

Basic for 1st and 2nd grade (rolling, crawling, crawling, running and jumping, throwing and catching). application Evaluation of conditional physical abilities for 3rd and 6th grade (Static Balance: maintaining a posture in various postures on one foot or eyes closed or not; Dynamic Balance Test: Walk on a line drawn with a turn and return without taking the feet off the line; Rhythm: adaptation of the child to the teacher's movements and repeat them instantly; Reaction: catch a ruler as soon as the teacher releases it and take the centimeters where the student took the ruler and Orientation: must make turns or changes of direction to the sides in the marked cones), Evaluation of conditional physical abilities: 20 m round trip test: measure aerobic endurance; Long jump without running; measure the power of the lower body, jumping with both feet without running, from one point to another, taking as an official measure the first point of contact of the body, measuring in cm the distance between each point; basketball throw: measure strength in upper body. It is important that the teacher measures where the ball first touches the ground. If the throw is directed to the sides it cannot be measured. Measurement or Qualification: expressed in whole meters, without measuring centimeters, for example, if a student throws 11.95 cm, it will be scored as follows

## 11 meters"; flexibility test; measure

Flexibility test; measure the ability to bend the trunk forward, where it is recommended to warm up well and rest 15 to 30 seconds between each attempt.

15 to 30 seconds between each attempt. It will be graded by taking the measurement in centimeters either positive or negative.

positive or negative. For example, +4 or -2 centimeters in flexibility; endurance: evaluate aerobic endurance in an area of 28x15 mts, and heart rate can be obtained with a heart rate monitor directly or heart rate can be obtained with a pulsometer directly or by taking the pulse manually in 10 seconds, and then take the heart rate in 10 seconds. seconds, and then take the heart rate with the result of the pulse, is multiplied by 6 to obtain it. by 6 to obtain it. Example: 25 beats times 6 = 180 beats/min".

Finally, the Sense of Belonging Questionnaire, constructed on the basis of a Likert-type response scale Likert type, with  $\alpha$ =.779 (see Annex B), to measure the sense of belonging to the school and the 2017) and Physical Activity, Sedentariness and Sleep Questionnaire (WHO,2022).

### **Considerations**

For the design of the project, meetings were arranged with the main educational authorities of the state; during the meetings and work tables with the physical education directorates, the characteristics and intentions of the project to be carried out in educational outreach were presented, with the physical education teachers already hired.

Afterwards, work tables were scheduled with the physical education supervisors to inform them and invite them to collaborate in the development of the AFyDEE project in order to work together and successfully land the project in the context of basic education in Sonora. Subsequently, volunteers were designated to the development of the project topics (design and redesign) and were verified from the preselection list of schools that are open to the public, with educational extension and relevant infrastructure for the development and execution of the project. This same list was sent to the diagnosis department infrastructure corroborate the state of the sports infrastructure (facilities and equipment).

Then they added pedagogical technical advisors to analyze the project structure, wording, congruence, methodology, evaluations and annexes. Subsequently, the information was sent to the basic education supervision for approval and the process of non-responsive letters was started with the legal department, with the parents' councils, training for the application of the evaluation instruments (anthropometric, coordination, conditional and membership questionnaire), quotation of sports materials (budgets) for the 15 pre-selected schools.

Regarding ethical considerations, a letter of non-responsibility was generated in which a no-responsibility letter was generated in which the release or responsibility to the

Next, the results are shown, according to the research objectives, which are organized in three sections: the first part refers to the context of gender and weight categorization by BMI; the second part presents the results of the questionnaire on physical activity, sleep and sedentary lifestyle, and sense of belonging. Finally, the instrumental proposal "Basic movement patterns" for first and second grade children is presented.

## **General characterization**

The final sample was 95 boys and girls, where females represented 47.7% (f = 45), while males represented 52.6% (f = 50) of the study (Table 3. With an average age of 7 to 9 years ( $\pm$  7.02).

| Sex              | f  | %    |
|------------------|----|------|
| Male             | 50 | 52.6 |
| Female           | 45 | 47.4 |
| Total enrollment | 05 | 100% |

**Table 3** Sex of 1st and 2nd grade participants *Own elaboration (2022)* 

Regarding the categorization of weight through BMI, 62.1% (f = 59) of students were identified as having a healthy weight, followed by overweight with 17.9% (f = 17), obesity with 14.7% (f = 14) and in a smaller proportion underweight with 5.3% (f = 5; Table 4).

The most common type of sleep is that of the participants who sleep more than 8 hours (20.3%; f = 19) and the rest sleep less than 6 hours with 7.5% (f = 7; Table 5)

| Weight         | f  | %    |
|----------------|----|------|
| Low weight     | 5  | 5.3  |
| Healthy weight | 59 | 62.1 |
| Overweight     | 17 | 17.9 |
| Obesity        | 14 | 14.7 |
| Total          | 95 | 100  |

**Table 5** Number of hours participants reported sleeping *Source: Own elaboration (2022)* 

The physical and sporting activities most frequently performed by the students were recreational physical activities; running represented 31.6% (f= 30), running and jumping with 14.7% (f = 14), baseball with 9.5% (f= 9) and soccer 6.3% (f = 6) specifically. On the other hand, students who do not engage in physical activity accounted for 17.9% (f=14).

physical activity represented 17.9% (f = 17) of the population (Table 6).

| f  | %   |
|----|---|
| 37 | 38.8  |
| 1  | 1.1   |
| 1  | 1.1   |
| 2  | 2.1   |
| 3  | 3.2   |
| 6  | 6.3   |
| 8  | 8.4   |
| 18 | 18.9  |
| 12 | 12.63                                       |
| 6  | 6.3   |
| 1  | 1.1   |
| 95 | 100   |
|    | 1<br>1<br>2<br>3<br>6<br>8<br>18<br>12<br>6 |

**Table 4** Categorization of weight through BMI. *Source: Own elaboration* (2022)

The results in relation to the time they practice physical activity and sport showed that 24.2% (f = 23) practice 30 minutes, likewise 20% (f = 20) of students show that they practice 2 hours more, followed by the groups of students who practice 1 hour and those who do not practice physical activity and sport.

**Table 7** Time spent practicing physical activity and/or sport reported by the participants. Own elaboration (2022)

The results of how much time students spend sitting or lying down during the day showed that 29.5% (f=28) are 1 hour sitting or lying down. Likewise, 25.3% (f=24) for more than 2 hours are in this posture. The rest of the students are 1.5 hours 12.6% (f=12), 30 minutes and 2 hours account for 11.5% (f=11) each and 9.5% (f=9) did not record a response (Table 8).

| Type of physical activity<br>or sport |   |      |
|---------------------------------------|---|------|
| Unregistered                          | 1 | 17.9 |
| Running                               | 3 | 31.6 |
| Running and jumping                   | 1 | 14.7 |
| Football                              | 6 | 6.3  |
| Baseball                              | 9 | 9.5  |
| Football and baseball                 | 2 | 3.2  |
| Football and basketball               | 1 | 1.1  |
| Jogging                               | 5 | 5.3  |
| Tagging                               | 5 | 5.3  |
| Bycicle                               | 1 | 1.1  |
| Cycling                               | 1 | 1.1  |
| Hide and seek                         | 1 | 1.1  |

**Table 9** Basic Movement Patterns reported by the participants. Own elaboration (2022)

Sense of belonging

| Movement patterns       | f  | %    |  |
|-------------------------|----|------|--|
| Excelent = 0 mistakes   | 39 | 41.1 |  |
| Good = 1 or 2 mistakes  | 53 | 55.8 |  |
| Regular = 3 mistakes    | 3  | 2.1  |  |
| Unefficient = 4 or more | 2  | 1.1  |  |
| Total                   | 95 | 100  |  |
| Crawling                |    | •    |  |
| Excelent = 0 mistakes   | 58 | 61.1 |  |
| Good = 1 or 2 mistakes  | 36 | 37.9 |  |
| Regular = 3 mistakes    | 0  | 0    |  |
| Unefficient = 4 or more | 1  | 1.1  |  |
| Total                   | 95 | 100  |  |
| Crawl                   |    |      |  |
| Excelent = 0 mistakes   | 86 | 90.5 |  |
| Good = 1 or 2 mistakes  | 8  | 8.4  |  |
| Regular = 3 mistakes    | 0  | 0    |  |
| Unefficient = 4 or more | 1  | 1.1  |  |
| Total                   | 95 | 100  |  |
| Running and jumping     |    |      |  |
| Excelent = 0 mistakes   | 87 | 97.6 |  |
| Good = 1 or 2 mistakes  | 6  | 6.3  |  |
| Regular = 3 mistakes    | 1  | 1.1  |  |
| Unefficient = 4 or more | 1  | 1.1  |  |
| Total                   | 95 | 100  |  |
| Throwing and catching   |    |      |  |
| Excelent = 0 mistakes   | 58 | 91.6 |  |
| Good = 1 or 2 mistakes  | 31 | 6.3  |  |
| Regular = 3 mistakes    | 3  | 3.2  |  |
| Unefficient = 4 or more | 3  | 3.2  |  |
| Total                   | 95 | 100  |  |
|                         |    | •    |  |

**Table 8** Time spent sitting or lying down (without sleeping) reported by students Own elaboration (2022)

According to the results of the questionnaire on the sense of belonging in 1st and 2nd grade students, of which 2nd grade students, of which there were 27 items (questions), in the question "What is the meaning of belonging? (questions); in the question "If I could return to If I could choose again, I would choose to study in this school".

| If I could choose, I would pick this school again |    |      |
|---|----|------|
| Agree   | 21 | 22.1 |
| Totally agreee                                    | 74 | 77.9 |
| Total   | 95 | 100  |

**Table 10** Sense of belonging reported by students related to school choice. Own elaboration (2022)

According to the results of the question "I like the spaces that make up the school", it was identified that the students strongly agree (60%; f = 57), followed by neither agree nor disagree (22.1%; f = 21), Finally, 17.9% (f = 17) agree (Table 11).

| I like the area of the school |    |      |
|-------------------------------|----|------|
| Indifferent                   |    |      |
| Agree                         | 17 | 17.9 |
| Totally agree                 | 57 | 60   |
| Total                         | 95 | 100  |

**Table 11** Sense of belonging reported by students related to liking school spaces. Own elaboration (2022)

The results of being an important member in the school reflect strongly agree (62.1%; f = 59), 21.1% (f = 20) say they agree and the rest of 16.8% (f = 16) say they neither agree nor disagree (Table 12).

| I'm feeling like a member of this school |    |      |
|--|----|------|
| Indifferent                              |    |      |
| Agree                                    | 20 | 21.1 |
| Totally agree                            | 59 | 62.1 |
| Total                                    | 95 | 100  |

**Table 11** Sense of belonging reported by students related to the feeling of being an important member of the school. Own elaboration (2022)

## **Funding**

This work was financed by La Secretaria de Educación y Cultura del Estado de Sonora [2022]

## **Conclusions**

As it is possible to appreciate, the methodology of this curricular design gave voice to each of the educational figures that intervene directly and indirectly in the development of the project, from educational authorities, such as school secretaries and supervisors, to parents' associations and neighborhood committees, and of course, to teachers and students. The above ensures the success of any educational innovation and change project (Hargreaves, 2013), since it considers the specific needs of the population that will be benefited, really approaching them, making them participants in the process, from its construction and project decision making, to its implementation, a phase where everyone's participation is undoubtedly required.

In relation to the reagents associated with the sense of belonging to the educational community, it is satisfactory that, after returning to classes for almost 2 school cycles of closure, students still perceive recognition, closeness, satisfaction and security in their schools. This is important because the post-pandemic emotional effects point to the need to generate resilience mechanisms in all people, especially in children, adolescents and young people, so it is encouraging that the school has the possibility of strengthening not only the academic, but also socioemotional aspects for a healthy life, especially if they are promoted from training projects such as the one developed in this article.

In conclusion, the importance of sports and physical importance of sports and physical conditioning as practices for the wellbeing of children and adolescents at different levels of basic education at the State and Federal level. Taking as a preamble the reopening of the school classrooms in the State of Sonora, after the pandemic by COVID-19, it is essential to implement strategies that will help to improve the health of children and adolescents.

In this way, the results of this project may go beyond the objectives set forth in this article. It is worth mentioning

### WHO

https://www.paho.org/es/temas/inmuniza cion It should be emphasized that the willingness of educational institutions, physical education teachers and parents to the willingness of educational institutions, physical education teachers and parents is fundamental for the optimal functioning and development of this project, which is why this project is considered to be the first step to encourage healthy lifestyles in the school environment.

#### References

Alvarez-Pitti, J., Casajús Mallén, J. A., Leis Trabazo, R., Lucía, A., López De Lara, D., Moreno Aznar, L. A., & Rodríguez Martínez, G. (2020). Ejercicio físico como «medicina» en enfermedades crónicas durante la infancia y la adolescencia. Anales de Pediatría, 92(3), 173.e1-173.e8.

https://doi.org/10.1016/j.anpedi.2020.01.0 10

Amau Chiroque, J. M., Mercado Portal, N., & León Manco, R. (2021). Estilos de vida y estado nutricional en el personal militar sanitario durante la COVID-19. Revista Cubana de Medicina Militar, 50(3), 1–

16. http://scielo.sld.cuhttp://www.revmedmilitar.sl d.cu

Calderón, A., Hastie, P. A., & Martínez, D. (2011). El modelo de educación deportiva sport (education model).

¿Metodología de enseñanza del nuevo milenio? Revista Española De Educación Física Y Deportes, (395), 63. https://www.reefd.es/index.php/reefd/art Corrales, A. R. (2009). "EL DEPORTE COMO ELEMENTO EDUCATIVO INDISPENSABLE EN EL ÁREA DE EDUCACIÓN FÍSICA". Revista Digital de Educación Física, 1(4), 864.

Hargreaves, A. (2013). El cambio educativo en Finlandia ¿Qué puede aprender el mundo? en Cuestiones de Educación. Argentina: Paidós. ISBN 978-950-12-

OPS & OMS. (2017). Envejecimiento y cambios demográficos. Salud en las américas. https://www.paho.org/salud-en-las- americas-2017/?post\_type=post\_t\_es&p=314&lang= es

Organización Mundial de la Salud. (2010). Educación física y Salud http://ltmataquito.cl/lt/assets/ed\_fisica.p df

Organización Mundial Salud. de la (2010). Recomendaciones mundiales sobre la actividad física para la salud. Disponible http://whqlibdoc.who.int/publication en: s/2010/9789243599977\_spa.pdf Organización Mundial de la Salud. (2020, 26 de noviembre). Actividad física. https://www.who.int/es/news-room/factsheets/detail/physical-activity Organziación Mundial de la Salud 1998 PAHO/WHO (2022). Data - Mortalidad | OPS/OMS. Pan American Health Organization / World Health Organization. Recuperado 28 de https://www3.paho.org/data/index.php/e s/mnumortalidad.html

Piaget, J. (1984). El lenguaje y el pensamiento del niño pequeño (1ste editie, Vol. 1). Paidós. SEC. (2019). MODELO EDUCATIVO: NUEVA ESCUELA MEXICANA (Nr. 1).

https://bibliospd.files.wordpress.com/2019/05/modeloeducativonuevarfedumeep.pdf

Secretaria de Educación Pública (2022) "Marco curricular y plan de estudios 2022 de la educación básica mexicana, Vol. 1, 5-157. https://revistadgepe.gob.mx/wp-content/uploads/2022/01/1\_Marco-Curricular\_ene2022.pdf

Secretaria de Gobierno. (2019, septiembre). LEY GENERAL DE EDUCACIÓN. https://dof.gob.mx/nota\_detalle.php?cod

ISSN-On line: 2414-8849 ECORFAN® All rights reserved. CATALÁN-DIBENE, Ernani Francesco, ESPINOZA-ROMERO, Migdelina Andrea and CRUZ-CASTRUITA, Rosa María and LÓPEZ-GARCÍA, Ricardo. New Mexican school and healthy life: physical activity and sports in Sonora. ECORFAN Journal-Republic of Guatemala. 2023

entornos. Primera edición. https://www.planeacion.sep.gob.mx/Vid aSaludable/docs/DVS\_Modulo5\_Cuader no.pdf SEP. (2021). Diplomado Vida Saludable: Módulo 4 Actividad física y hábitos de sueño. Guía de estudio. Primera edición. https://dgfc.siged.sep.gob.mx/VidaSalud able/docs/DVS\_Modulo4\_Cuaderno.pdf

Thorpe, R., Bunker, D., & Almond, L.A (1998) Change in focus for the teaching of games. Paper presented at the Sport Pedagogy. Olympic Scientific Congress Proceedings, 6 163-169.

Urrea-Cuéllar, M. Á., Arenas, J., & Hernández Calle, J. (2021). Relación entre los estilos de vida y autoconcepto en jóvenes universitarios. Retos, 41, 291–298. https://recyt.fecyt.es/index.php/retos/index