

Importance of breakfast in schoolchildren

Importancia del desayuno en escolares

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Abstract

Feeding during childhood is essential for the quality of life that is achieved in adulthood, which is why it is essential to start the day with a nutritious breakfast that provides the necessary macro and micronutrients according to the age of the children. There are several authors who mention that breakfast is the most important intake of the day. When the boy or girl begins their attendance at educational institutions, they require an adequate nutritional accompaniment, in order to be able to perform adequately in the academic-personal activities of their age. Objective: To increase the habit of having breakfast at home and to identify the characteristics of a healthy breakfast in schoolchildren. Methodology: In a descriptive, analytical and longitudinal study, through a population nutrition intervention project, food guidance activities were carried out weekly for 4 months to 437 schoolchildren in the municipality of Zacatecas. Contribution: At the end of the intervention activities, the number of schoolchildren who ate breakfast from home increased and identified that breakfast should not exclude healthy food groups, thus contributing to the modification of eating habits.

Resumen

La alimentación durante la niñez es fundamental para la calidad de vida que se llegue a tener en la edad adulta, es por ello que se hace indispensable iniciar el día con un desayuno nutritivo que aporte los macro y micronutrientes necesarios de acuerdo a la edad de los niños. Existen varios autores que mencionan que el desayuno es la ingesta más importante del día. Cuando el niño o la niña empiezan su asistencia a las instituciones educativas requiere un acompañamiento nutricional adecuado, para poder desempeñarse adecuadamente en las actividades académicas-personales propias de la edad. Objetivo: Incrementar el hábito del desayuno en casa e identificar las características de un desayuno saludable en escolares. Metodología: En un estudio descriptivo, analítico y longitudinal, mediante un proyecto de intervención en nutrición poblacional se llevaron a cabo actividades de orientación alimentaria durante 4 meses, semanalmente a 437 escolares del municipio de Zacatecas. Contribución: Al término de las actividades de la intervención, aumentó el número de escolares que desayunaron desde casa e identificaron que el desayuno no debe excluir los grupos de alimentos saludables, contribuyendo así a la modificación de hábitos alimentarios.

Schoolchildren Breakfast, Healthy

Escolares, Desayunos, Saludables

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Introduction

Biological-physiological and psychosocial changes occur in the infant stage that allow adequate and healthy development at this stage (Zumba *et al.*, 2019). From the age of 6 years old, most children are ready to start learning and performing in a school environment. The first years are focused on learning basic aspects but gradually the focus becomes more complex (Ortiz & Cabrera, 2022); the ability to pay attention is important during growth both at school and at home, a child must be able to concentrate continuously on one or several tasks, this school performance also depends on good eating habits (López & González-Martí, 2022).

The school stage is defined as that between 6 and 12 years of age (United Nations Children's Fund (UNICEF), 2022), a period in which biological, psychological and behavioral changes occur and where the schoolchild acquires a certain independence from the family nucleus as a result of the school activities in which he/she begins to participate, which may require changes in food consumption patterns, either because of the acquisition of new habits or because they demand more energy and nutrients as they become more active.

The diet during the school stage should meet the nutritional demands that each person needs, covering without exception the different macronutrients: proteins, carbohydrates and lipids, as well as vitamins and minerals that are essential for healthy development and growth (McIntosh, 2022).

According to the Mexican Official Standard 043 of the Ministry of Health, the diet of the population, including school children, should be complete, varied, balanced, safe, sufficient and adequate to tastes and food preferences without sacrificing nutritional aspects; and in addition, three to 5 main meals a day should be considered: breakfast, lunch and dinner, as the most substantial meal, and two snacks or refreshments between them, which although they are lighter do not lose the aforementioned characteristics (Solana, 2016).

Importance of breakfast

Breakfast is one of the most relevant eating habits is the consumption of food before leaving home (Lizano-Vega, Madrigal & Cerna-Solís, 2021), it represents the first food consumed after a period of fasting during the night's rest (Martínez, 2019); This first meal provides the body with nutrients and calories that allow starting and carrying out the day's activities with sufficient energy and thus avoiding energy fluctuations, in addition to the fact that it can avoid the consumption of energy-dense foods or foods low in nutritional quality in the following meals of the day, as it regulates and contributes to metabolism and digestion (Meler & Burgos, 2022).

According to the President of the Spanish Foundation for Nutrition on the occasion of the National Breakfast Day (DND) 2022 in Spain, Ms. Rosaura Leis Trabazo, "Consuming a healthy breakfast is related to a higher daily intake of nutrients, better compliance with nutritional recommendations and a better quality of the total diet" (Moreno-Aznar *et al.*, 2021, p. 398).

In the latest health and nutrition surveys (ENSANUT) 2012 and 2018, in Mexico the combined prevalence of overweight and obesity was has been increasing in school children with a prevalence of 34.4% and 40.1% respectively (Shamah-Levy *et al.*, 2020).

Eating some foods for breakfast can influence to increase or decrease the consumption of others or provide combinations with higher or lower nutritional value. To configure a healthy breakfast, foods with high caloric content and low nutritional density, which simply contribute calories, fat, sodium or sugar to the total intake for the day, should be avoided (Moreno-Aznar *et al.*, 2021).

People who do not eat breakfast are more likely to become obese because they undergo prolonged fasting and when the first meal is received the body responds by accumulating it as an energy reserve.

Children with overweight and obesity (UNICEF, 2022):

- Have higher blood pressure.
- They are exposed to a higher risk of suffering from diseases such as diabetes, hypertension, cardiovascular and respiratory diseases.
- They are more likely to suffer from emotional problems such as depression, anxiety, stress, body preoccupation and low self-esteem.
- The vast majority will remain overweight or obese into adulthood if their diet is not modified.

Healthy breakfast

An optimal breakfast should include (López *et al.*, 2018):

- Bread and cereals preferably whole grains that provide the body with fiber and carbohydrates that provide energy, vitamins and minerals.
- Low-fat dairy that provide protein, calcium and vitamins.
- Fruits and/or vegetables that provide water, vitamins, minerals and fiber.
- Protein foods that provide protein, fat, vitamins and minerals.

Methodology to be developed

An observational, analytical and longitudinal study was carried out in a population of school children who belonged to a primary school in the municipal capital of the State of Zacatecas. The population consisted of 437 girls and boys from first to sixth grade of elementary school, it was considered as long as they answered the questionnaire and were present at the nutritional orientation provided; if they did not comply with this, they were eliminated from the study.

This work was monitored for 4 months, the students were given a survey type questionnaire with prior authorization (the school authorities were asked for permission to develop the project and each parent was asked for written consent where they were informed about the objectives of the same and the possibility of not authorizing to answer the questionnaire of eating habits), the purpose of the instrument used was to know the practice of breakfast before leaving home, as well as the identification of the food groups that compose it and was asked to identify options for healthy breakfasts; and after the talks (which were given weekly) and reinforcement of dietary orientation, the participants' breakfast habits were measured again.

Statistical analysis

IBM SPSS Statistics Package for the Social Sciences version 22 was used for data processing.

Ethical considerations

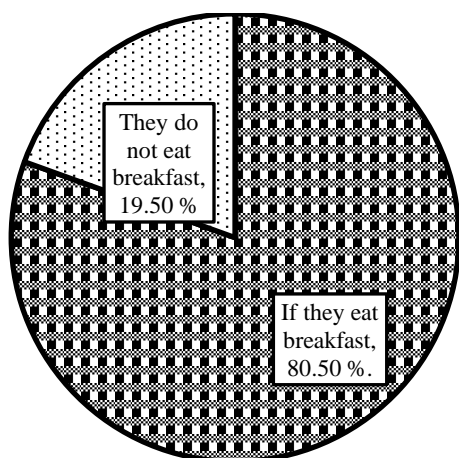
The study complied with the Declaration of Helsinki of the World Medical Association. It complied with the provisions of the regulations of the General Health Law on Research for Health in Mexico. It was declared safe.

Results

As already mentioned, the total sample was 437 schoolchildren. The instrument was applied at the beginning of the work to know the opinion of the surveyed population and also once the informative talks were given to show the importance of macro and micronutrients at breakfast (the survey was applied again).

Breakfast is considered one of the most important meals, since after eating dinner, food is not eaten again until the next day, as it is known, food is the fuel of the body because it transmits energy for all vital functions, according to nutritionists, breakfast is ultra necessary for schoolchildren.

At the beginning it was found that 19.5% of the participants did not have the habit of eating breakfast before going to school, but 80.5% did (see graphic 1).



Graphic 1 Responses to the question Do you eat breakfast before leaving home?

Source: Own elaboration

When the children were asked about the importance of eating breakfast, 89.9% mentioned that it is important and 10.1% did not consider it important (see Table 1).

	Frequency	Percentage	Valid percentage	Cumulative percentage
Si	393	89.9	89.9	89.9
No	44	10.1	10.1	100.0
Total	437	100.0	100.0	

Table 1 Responses to the question Do you know why breakfast is important?

Source: Own elaboration

Food is fundamental at all ages, but in the case of children it is necessary for growth, and goes hand in hand with good health. Infants learn about eating habits depending on their family, since they are in the mother's womb and later through breast milk, this becomes more acute depending on the growth and good habits that each family has, children at this age also know how to recognize if a breakfast is adequate or not. When asked if they know what an adequate breakfast is, they said that they did (85.8%), but there are also those who said they did not know (14.2%).

In order to learn more about healthy breakfasts, they were asked questions to see if they considered that a cereal with milk can be an adequate breakfast, they mentioned no with 36.6%, followed by don't know with 32.3% and finally yes with 31.1%. They were also asked if they can consider a breakfast only a bread with milk and the boys and girls mentioned yes with 41.5% followed by 36.0% don't know and 22.8% that they do not know.

Likewise, when asked their opinion about having a healthy breakfast with only an apple, 42.6% said yes, 27.7% said no and 29.7% said they did not know.

As mentioned in the methodology, food-nutritional orientation activities were carried out for boys and girls, in which topics were considered that would allow this population to have more knowledge about healthy breakfasts and their impact on health.

The first talk that was handled with the children was about healthy and unhealthy food groups, the purpose of this was that the school children were able to identify the plate of good eating as the Mexican guide of food orientation and as a basis for the consumption of healthy foods, allowing to recognize the healthy food groups that should compose each meal time, thus achieving an adequate and healthy dish for the age of the infants.

Another talk was about correct nutrition, here the objective was to identify the characteristics of a diet to be considered as correct for the stage of life in which the children are, the correct ones that a correct diet should consider were explained (see Figure 1): safety (free of microorganisms and pathogens), balanced (containing amounts of carbohydrates, proteins and lipids), sufficient (covering the energy needs for daily activities of the age), adequate (to the tastes and nutritional needs of the stage), complete (containing all healthy food groups) and varied (including a diversity of foods from each group).



Figure 1 Food-nutritional orientation

Source: Own elaboration

One of the central talks within this work was the approach to the importance of breakfast (see Figure 2), where the benefits of breaking the fast after the night's rest hours and as an initial part of the day's activities were explained and fed back to the children. This is necessary to reduce fatigue and tiredness, to avoid energy fluctuations during the day, to perform at school, to help concentration, metabolism and development and growth.



Figure 2 Food and nutrition orientation, with the theme importance of breakfast
Source: Own elaboration

For the orientation on healthy beverages for school children, a workshop was held, in which it was possible to expose and identify that beverages are part of every meal time but that there are drinks that do not always comply with the characteristics of being healthy due to their high sugar content (see Figure 3), and many others that should not be consumed at school age due to their content of stimulating substances such as caffeine; these drinks can also damage physical and even dental health in frequent consumption.



Figure 3 Food and nutrition orientation talk on the importance of breakfast.
Source: Own elaboration

Likewise, when the topic of food groups that make up a healthy breakfast was taught, the students were very attentive, since the components of a healthy breakfast and lunchbox were addressed (see Figure 4), the purpose was for the students to recognize which are those components that in a meal of this type should be considered, this to show if through their few years of life they will identify if what they consume as breakfast is nutritionally adequate for their age because of deficiencies among the food groups that compose them.



Figure 4 Food-nutritional orientation session, with the theme of food groups that make up a healthy breakfast
Source: Own elaboration

At the end of the dietary-nutritional orientation, the survey was applied again in order to analyze the impact that this information could have had on the children, and the results showed that when asked again "Do you eat breakfast before leaving school? There was an increase with respect to the answers given before the orientation, as can be seen in Table 2, where it can be seen that after the orientation there was an increase of 2.6% with respect to the previous answer.

Similarly, when the responses to the question about the importance of eating breakfast after the lectures were analyzed, there was an increase of 7.6% in terms of the responses obtained, going from 89.9% before to 97.7% after the lectures. There was also an increase in the students' responses to the question about the importance of eating breakfast, from 85.8% to 94.7%, which translates into an increase of 8.9%.

	Before		Then	
	Frequency	Percentage	Frequency	Percentage
Si	352	80.5	363	83.1
No	85	19.5	74	16.9
Total	437	100.0	437	100.0

Table 2 Responses to the question Do you eat breakfast before leaving school? before and after orientation

Source: Own elaboration

Where the impact of the orientation was most noticeable was in the children's perception of the consumption of only cereal and milk as an adequate breakfast, since there was a variation of 38.7% in terms of not considering it adequate, this can be seen because in the initial survey it was 33.6% and in the final survey it was 75.3%, and as for the students who did not know, the percentage was reduced by 90%.

This also goes hand in hand with the significant change in the percentages of students who believe that eating bread with milk for breakfast is adequate, going from 51.1% in the initial survey to 5.9% in the final response.

The percentage of students who believe that eating only one apple is healthy began the survey with 51.7% and in the second survey the percentage dropped to 37.3%.

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Conclusions

As a result of the research and intervention, we were able to increase the number of school children who eat breakfast at home before going to school; the most noticeable changes were when considering the importance of breakfast for their health and acquiring this habit. The most significant was that once the food groups and characteristics of a breakfast to be considered healthy, complete and age appropriate were demonstrated, they were able to identify when a breakfast was incomplete.

During the school stage, the population is very receptive to new information; and it is crucial for the acquisition of new eating habits to work in this population to prevent diseases such as malnutrition, non-communicable diseases and other lifestyle-related ailments.

References

Fondo de las Naciones Unidas para la Infancia (UNICEF). (2022). Alimentación en la etapa escolar: Cocinar para ellos y con ellos. Obtenido de UNICEF Web site: <https://www.unicef.org/uruguay/alimentacion-en-la-etapa-escolar> 05 octubre de 2022.

Lizano-Vega, M., Madrigal, N., & Cerna-Solís, I. (2021). Seguridad alimentaria en tiempos de pandemia por COVID-19. *Revista Hispanoamericana de Ciencias de la Salud*, 7(3), 74-81. <https://doi.org/10.56239/rhcs.2021.73.501>

López Sobaler, A. M., Cuadrado Soto, E., Peral Suárez, Á., Aparicio, A., & Ortega, R. M. (2018). Importancia del desayuno en la mejora nutricional y sanitaria de la población. *Nutrición Hospitalaria*, 35(SPE6), 3-6. <https://scielo.isciii.es/pdf/nh/v35nspe6/1699-5198-nh-35-nspe6-00003.pdf>

López, L. M. G., & González-Martí, I. (2022). Plan de calidad para el Deporte en edad escolar de Castilla-La Mancha (Vol. 38). Ediciones de la Universidad de Castilla La Mancha. [https://books.google.es/books?hl=es&lr=&id=iWh7EAAAQBAJ&oi=fnd&pg=PP1&dq=L%C3%B3pez,+L.+M.+G.,+%26+Gonz%C3%A1lez-Mart%C3%AD,+I.+\(2022\).+Plan+de+calidad+para+el+Deporte+en+edad+escolar+de+Castilla-La+Mancha+\(Vol.+38\).+Ediciones+de+la+Universidad+de+Castilla+La+Mancha.&ots=QRW2SJKwb&sig=nzCebixIg3nFeOkGMKOCu5qVa2Y#v=onepage&q&f=false](https://books.google.es/books?hl=es&lr=&id=iWh7EAAAQBAJ&oi=fnd&pg=PP1&dq=L%C3%B3pez,+L.+M.+G.,+%26+Gonz%C3%A1lez-Mart%C3%AD,+I.+(2022).+Plan+de+calidad+para+el+Deporte+en+edad+escolar+de+Castilla-La+Mancha+(Vol.+38).+Ediciones+de+la+Universidad+de+Castilla+La+Mancha.&ots=QRW2SJKwb&sig=nzCebixIg3nFeOkGMKOCu5qVa2Y#v=onepage&q&f=false)

Martínez, R. B. (2019). Aprende a desayunar. Editorial AMAT. [https://books.google.es/books?hl=es&lr=&id=D5C ODwAAQBAJ&oi=fnd&pg=PT15&dq=Mart%C3%ADnez,+R.+B.+\(2019\).+Aprende+a+desayunar.+Editorial+AMAT.&ots=fJx7Kx4A1W&sig=m3UUAA8cHdlyHsvq4g2XxnI85k#v=onepage&q&f=false](https://books.google.es/books?hl=es&lr=&id=D5C ODwAAQBAJ&oi=fnd&pg=PT15&dq=Mart%C3%ADnez,+R.+B.+(2019).+Aprende+a+desayunar.+Editorial+AMAT.&ots=fJx7Kx4A1W&sig=m3UUAA8cHdlyHsvq4g2XxnI85k#v=onepage&q&f=false)

McIntosh, S. N. (2022). Williams. Nutrición básica y dietoterapia. Elsevier Health Sciences. [https://books.google.es/books?hl=es&lr=&id=yxp4EAAAQBAJ&oi=fnd&pg=PP1&dq=McIntosh,+S.+N.+\(2022\).+Williams.+Nutrici%C3%B3n+b%C3%A1sica+y+dietoterapia.+Elsevier+Health+Sciences.&ots=qKmS61I3EN&sig=yy8s5g9yyfTUCAn3UOI7_GqpWQE#v=onepage&q=McIntosh%20%20S.%20N.%20\(2022\).%20Williams.%20Nutrici%C3%B3n%20b%C3%A1sica%20y%20dietoterapia.%20Elsevier%20Health%20Sciences.&f=false](https://books.google.es/books?hl=es&lr=&id=yxp4EAAAQBAJ&oi=fnd&pg=PP1&dq=McIntosh,+S.+N.+(2022).+Williams.+Nutrici%C3%B3n+b%C3%A1sica+y+dietoterapia.+Elsevier+Health+Sciences.&ots=qKmS61I3EN&sig=yy8s5g9yyfTUCAn3UOI7_GqpWQE#v=onepage&q=McIntosh%20%20S.%20N.%20(2022).%20Williams.%20Nutrici%C3%B3n%20b%C3%A1sica%20y%20dietoterapia.%20Elsevier%20Health%20Sciences.&f=false)

Meler, D. M., & Burgos, E. B. (2022). Los beneficios del ayuno: Hacia el bienestar físico y mental (Vol. 5). Editorial AMAT. [https://books.google.es/books?hl=es&lr=&id=JRiUCwAAQBAJ&oi=fnd&pg=PT7&dq=Meler,+D.+M.,+%26+Burgos,+E.+B.+\(2022\).+Los+beneficios+de+l+ayuno:+Hacia+el+bienestar+f%C3%ADsico+y+mental+\(Vol.+5\).+Editorial+AMAT.&ots=zIU3RP48vN&sig=apKYi-K4PGX_1srMEu5zQJUXIYE#v=onepage&q&f=false](https://books.google.es/books?hl=es&lr=&id=JRiUCwAAQBAJ&oi=fnd&pg=PT7&dq=Meler,+D.+M.,+%26+Burgos,+E.+B.+(2022).+Los+beneficios+de+l+ayuno:+Hacia+el+bienestar+f%C3%ADsico+y+mental+(Vol.+5).+Editorial+AMAT.&ots=zIU3RP48vN&sig=apKYi-K4PGX_1srMEu5zQJUXIYE#v=onepage&q&f=false)

Moreno Aznar, L. A., Vidal Carou, M. D. C., López Sobaler, A. M., Varela Moreiras, G., & Moreno Villares, J. M. (2021). Papel del desayuno y su calidad en la salud de los niños y adolescentes en España. *Nutrición Hospitalaria*, 38(2), 396-409. <https://scielo.isciii.es/pdf/nh/v38n2/0212-1611-nh-38-2-396.pdf>

Ortiz, C. V., & Cabrera, G. (2022). La estadística y la probabilidad en los currículos de matemáticas de educación infantil y primaria de seis países representativos en el campo. *Educación matemática*, 34(2), 245-274. <https://dialnet.unirioja.es/servlet/articulo?codigo=8565568>

Shamah-Levy, T., Campos-Nonato, I., Cuevas-Nasu, L., Hernández-Barrera, L., del Carmen Morales-Rúan, M., Rivera-Dommarco, J., & Barquera, S. (2020). Sobrepeso y obesidad en población mexicana en condición de vulnerabilidad. *Resultados de la Ensanut 100k. salud pública de México*, 61(6), 852-865. <https://www.medigraphic.com/pdfs/salpubmex/sal-2019/sal196q.pdf>

Solana, M. D. C. S. (2016). Significado externo de “alimentación correcta” en México. *Salud colectiva*, 12, 575-588. <https://www.scielosp.org/pdf/scol/2016.v12n4/575-588/es>

Zumba, N. B. C., Cordero, A. J. C., Molina, M. C. A., & Coronel, A. A. R. (2019). Factores determinantes del estado nutricional en la niñez en edad escolar. *Universidad Ciencia y Tecnología*, 23(95), 25-32. <https://uctunexpo.autanabooks.com/index.php/uct/article/view/242/433>