

The Effectiveness of Project-Based Learning at The Level of Health and Sports Awareness for Students of The College of Applied Studies and Community Service

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Abstract

Effectiveness of project-based learning at the level of health and sports awareness for students of the College of Applied Studies and Community Service. the research aims to identify the effectiveness of project-based learning at the level of health and sports awareness for students of the College of Applied Studies and Community Service. researchers used the experimental method for its suitability to the research. The research sample was deliberately chosen from first-level students, who are (113) students from the College of Applied Studies and Community Service, whose ages range from (18-20) years. Measurements were taken and data collected through questionnaire forms.

Among the most important findings of the research is the existence of a statistically significant relationship at the level of (0.05) in all aspects of students' health and sports awareness, the effectiveness of the project learning method as one of the health education methods in the learning process.

Through this, the following recommendations were reached to activate the project learning method for different academic courses and use it on different groups in society, to pay attention to the practical aspect as a basic method in teaching health and fitness, which helps to confirm the practical practice of information related to sports and health in the daily life of students and integrating educational messages in the curricula courses at different academic levels.

Keywords: *Project-Based Learning, Health, Sports Awareness, fitness, food*

Introduction

Today we are living in a world of concepts and information being changed at a rapid rate, additional

information every second. Since ancient times, there is a strong relationship between health and food. Hippocrates stated, "Let food be your medicine, and medicine be your food." The results of many scientific types of research and studies during the past twenty years have confirmed the importance and benefits of proper nutrition and its positive impact on athletic performance. ^(1,2)

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Among the most important documents issued in the field of athlete, nutrition is those issued by the American College of Sports Medicine, the American Dietetic

Association, and the Canadian Dietetic Association on nutrition and athletic performance. These documents emphasize that optimal nutrition improves athletic performance and the ability to recover from physical exertion. It recommends the appropriate selection of food, fluids, eating time, and additional options for additional materials to obtain optimal health and physical performance. Changing dietary habits is also considered one of the most difficult and complex operations, and this can only be done by setting an integrated nutritional policy in which nutritional education is a fundamental role. (3,4).

As Maffei (2000) (5) points out that food education has multiple attempts to encourage people to adjust their ways of life in terms of health and nutrition in better ways. Within the limits of the existing capabilities, because food education is not only information or advice that is listed. Also, the importance of modifying and changing some unhealthy food habits and replacing them with useful daily nutritional habits and practices gradually and in a correct scientific manner based on application and persuasion. (5,6).

Duyff (2012) and Al-Khusaibi (2019) (7,8) agree that the overall goal of nutritional education is to reach the individual, the family, and then the community, to a better life and stronger health, by summarizing the goals of nutritional education as follows: -

- 1- Clarify the relationship between balanced nutrition and body safety.
- 2- Explain the importance of balanced nutrition and that it is the nutrition that secures the needs of people according to their gender, age, and different physiological aspects.
- 3- Teaching individuals that the value of food is not in the exaggeration of its price, but the content of the food from the main nutrients.
- 4- Getting rid of bad eating habits and learning correct eating habits based on science, not on myth.
- 5- Teaching the individual how to follow his diet and how to evaluate the diet to suit the needs of the body.
- 6- Starting to educate the individual, then the

community, and create groups to help the food guide in his work. (7-9).

Research Problem and Importance:

The culture of any human society consists of the interaction between a special pattern of behavior, habits, and beliefs, and the teenage person develops a pattern similar to the special pattern prevailing in his society. This dietary pattern affects the individual's behavior towards the classification of food and nutritional habits in health and disease. (10,11).

The research problem is summarized in the fact that the level of movement performance is affected by the physical form in which food plays an important role, as reaching the level of good physical preparation requires an integrated preparation whose base is health and nutrition. It appears when planning for nutrition the importance of keeping in mind that meals throughout the day are complementary to each other. So, we have to eat various nutrients to provide the body needs. (12,13)

The individual's nutritional habits are the result of several social, religious, environmental, and other factors. The family is the first source for the individual's nutritional trends. As it is responsible for raising him from childhood and introducing him to the food habits and practices. Also forming his social trends related to food to conform with the prevailing food and social etiquette in society. Family strength these habits off food and develop them. Examples of other social activities available in the environment, such as school, university, public feasts, religious events, and other social celebrations. (14,15).

Shang (2012) (16) also adds that the culture nutritionally has an important role in determining the extent to which the individual benefits from the nutrition process, in choosing the type and quantity of food according to the daily needs necessary for the body and in determining the amount of food needed according to many variables, the most important of which is the growth stage, aging stage, health condition, nature of work or activity performed by the individual, disease, climatic conditions. (16,17).

By informing researchers of the scientific studies and references that emphasized the importance of

nutritional evaluation for athletes, there are still some problems that affect the performance level of the practitioner of sports activity, including proper nutrition during training and competitions, to help coaches to improve the performance level of athletes, and from here the importance of the current study appears.

This prompted researchers to conduct this study to identify the effectiveness of project-based learning at the level of health and sports awareness for students of the College of Applied Studies and Community Service.

The Research Aim

The research aims to identify the effectiveness of project-based learning at the level of health and sports awareness for students of the College of Applied Studies and Community Service through the following goals:

1- Identify the effectiveness of project-based learning at the level of students' health awareness.

2- Learn about project-based learning at the level of students' mathematical awareness.

Research Hypotheses:

There are statistically significant differences in the use of project-based learning at the level of students' health and mathematical awareness.

Research Procedures:

First: Research Methodology:

The researchers used the experimental approach due to its suitability to the nature of the study, as it is considered the most appropriate method for achieving the research objectives.

Second: Fields of Research:

1- The sample (the human domain):

The total number of the sample was (113) male and female students from the College of Applied Studies and Community Service, whose ages range from 18-20 years.

· Characteristics of the sample members

The researchers collected demographic data on the

individuals of the research sample in the variables under investigation.

2- Location domain:

The researchers applied the study at the College of Applied Studies and Community Service at Imam Abdulrahman bin Faisal University.

3- Time-domain:

- The study took two months, from 9/21/2019 to 11/21/2019.

- The major study was conducted on November 21, 2019.

Third: Measurements and research tools:

The researchers conducted a survey study of previous research and studies related to the research to choose the tools that are commensurate with the research, and the chronological age of the members of the research sample. The researchers used questionnaire forms to measure the research variables:

A- A form to learn about the nutritional culture of the students taking part in the research.

B- A form to know the nutritional status of students over a separate week.

Fourth: Research steps:

1- Exploratory study:

Its aim was:

1. Conducting personal interviews with the sample members to select the students taking part in the research.

2. Conducting personal interviews with professors of the Faculties of Physical Education and the National Institute of Nutrition to determine the axes of the questionnaire.

Results

1. select the number of (113) male and female students from the College of Applied Studies and Community Service at Imam Abdulrahman bin Faisal

University to represent the research sample.

2. Make a reference analysis for all previous studies and scientific research in nutrition and physical education

3. Amendment of the questionnaire form in proportion to the study sample.

2- Basic study:

1- Steps for designing a questionnaire form for the research sample:

One of the most important steps that were followed in this research is the selection of the questionnaire’s content, which started by defining the main themes of the questionnaire and its phrases by conducting a reference survey of several Arabic and foreign books and references and analyzing them to prepare the questionnaire.

Psychometric characteristics of the questionnaire form:

Validity: The validity of the measuring instrument was verified in the following ways:

The authenticity of the content: where the questionnaire was presented to the gentlemen of the arbitrators to express an opinion on the wording of the phrases and the accuracy of the expression for each phrase, as well as the extent to which the phrase belongs to the axis to which it belongs.

Stability: The reliability of the test was confirmed by the Alpha Cronbach’s method, as this method considers the variance of the phrase and the variance of the axis to which the phrase belongs. The following table shows the extent of the stability coefficient of the expressions of each axis, the stability coefficient of the axis, and the reliability coefficient of the questionnaire.

Table (1): Correlation coefficients between the terms of each axis and the degree of the axis to which the phrases belong, and between the axis degree and the total score of the questionnaire

#	The axes of the questionnaire	The number of phrases	Validity		Stability transactions	
			Correlation coefficient between		Correlation coefficient between	
			Phrase and Axis	Axis and total score	Phrase and Axis	Axis and total score
1	Nutrients	25	0.694-0.728	0.761	0.791-0.832	0.843
2	(Before excluding) treatment and nutrition	25	0.706- 0.794	0.786	0.763-0.811	0.812
3	Balanced nutrition	25	0.697 – 0.781	0.802	0.781-0.851	0.862
4	General, right, wrong and wrong concepts related to nutrition	30	0.711- 0.782	0.791	0.746-0.795	0.802
5	Malnutrition diseases	20	0.685- 0.761	0.806	0.738-0.805	0.805
6	Nutritional culture for athletes	26	0.729- 0.779	0.798	0.762-0.824	0.824
7	Water behavior in the faculty	21	0.669- 0.738	0.761	0.722-0.759	0.765

Fifth: Statistical Treatments:

Presentation and discussion of results:

Table (2)

Frequencies, percentages, and Chi-2 values of the study sample responses on the first axis: dietary elements

#	Food (information) elements	Yes		No		Chi-2
		N	%	N	%	
1	Eating meat with vegetables at one meal increases the rate of iron absorption several times over the normal rate.	33	29.2	80	70.8	19.5*
2	Protein increases iron absorption.	98	86.73	15	13.27	61.0*
3	An increase in the amount of carbohydrates in the food turns into fats in the body	68	60.18	45	39.82	4.7*
4	Protein increases calcium absorption in the body.	39	34.51	74	65.49	10.8*
5	Increasing protein intake leads to increased excretion of calcium in the urine.	34	30.09	79	69.91	17.9*
6	Increasing fat intake at the meal reduces calcium absorption.	46	40.71	67	59.29	3.9*
7	Too much fiber and cellulose in the diet hinders iron absorption.	28	24.78	85	75.22	28.8*
8	The rate of iron absorption from animal sources is faster than from plant sources.	59	52.21	54	47.79	0.2
9	Vitamin D deficiency lowers calcium in the body.	25	22.12	88	77.88	35.1*
10	Vegetable fats are high in cholesterol.	82	72.57	31	27.43	23.0*
11	Vitamins contain fewer calories than proteins and carbohydrates.	84	74.34	29	25.66	26.8*
12	Vitamin C contributes to iron absorption.	55	48.67	58	51.33	0.1
13	Leafy greens are low in fat.	86	76.11	27	23.89	30.8*
14	Protein is the best source for providing an athlete's body with energy.	65	57.52	48	42.48	2.6
15	Sugar contains few fats and proteins.	43	38.05	70	61.95	6.5*
16	Saturated fats are less harmful than unsaturated fats.	56	49.56	57	50.44	0
17	All vitamins are dissolved in body fats.	73	64.6	40	35.4	9.6*
18	Athletes' abuse of vitamin and mineral tablets clearly supports their performance.	80	70.8	33	29.2	19.5*
19	Carbohydrates are the most important part of human nutrition.	80	70.8	33	29.2	19.5*
20	Fats and proteins are higher in calories than carbohydrates.	66	58.41	47	41.59	3.2
21	Proteins are the only source of nitrogen for the body.	44	38.94	69	61.06	5.5*
22	It is advised never to drink water during the training unit.	85	75.22	28	24.78	28.8*
23	Supplying the body with water or fluids is essential before, during and after sporting activity.	100	88.5	13	11.5	67.0*
24	Minerals are stored in the bones as well as in the body's muscle tissues.	89	78.76	24	21.24	37.4*
25	Table salt lowers arterial pressure and table sugar increases arterial pressure.	81	71.68	32	28.32	21.2*

It is clear from Table (3) that there is a statistically significant difference in students' information about nutrients at a level of significance (0.05) in all statements of the axis except statements (8, 12, 14, 20). Through this, the researcher believes that the information available to the students found (11) correct information and (14) wrong nutritional information, and therefore they are in dire need of nutritional information since the first year.

This is confirmed by Willett (2017) ⁽²⁰⁾ that the mother has a great role in the formation of the nutritional culture, as the mother's education has a positive role in choosing balanced nutrition for her child, which makes him enjoy good health ^(20,21). Alonso-Alvarez (2001), Culic, and others (2014) ^(22,23) also agree that there is a correlation between food culture and some health connotations and that there is a strong correlation between the information and healthy eating habits of

pupils and parental education level (22–24).

This is in agreement with Zemel(1997)⁽²⁵⁾ that water, vitamins, mineral salts, and plant fibers are important and necessary nutrients for athletes to keep their bodies safe. Therefore, their food must contain vitamin (A), which is found in milk and dairy products, which is responsible for the safety and formation of muscles and tissues, as

well as a vitamin (B), and vitamin (B12) necessary for the integrity of the nervous system, which are several compounds found in red meat and “ Liver, legumes with skin, such as beans, brown lentils, and chickpeas, some of which are found in leafy vegetables, dairy products. That is why to get vitamin B, is necessary to have all nutrients throughout the day.”^(25,26).

Table (3): Frequencies, percentages, and Ca2 values of the study sample responses on the second axis: Nutrition (before, during, and after) training and competition and balanced nutrition and meal planning

#	phrases	Yes		No		Chi-2
		N	%	N	%	
1	Carbohydrates are a better energy source than fat or protein.	35	30.97	78	69.03	16.4*
2	Stimulants should be taken shortly before the match.	67	59.29	46	40.71	3.9*
3	It is necessary to reduce the amount of protein in the pre-match meal	45	39.82	68	60.18	4.7*
4	The match day meal is eaten 3-4 hours before the competition.	53	46.9	60	53.1	0.4
5	The match day meal is required to be easy to digest and free from animal fats.	92	81.42	21	18.58	44.6*
6	Drinking water is essential before, during and after the tournament.	100	88.5	13	11.5	67.0*
7	The post-match meal should contain all the nutrients to be distributed between lunch and dinner.	100	88.5	13	11.5	67.0*
8	On match days, it is advised not to eat new foods that the athlete is not aware of.	90	79.65	23	20.35	39.7*
9	During match days it is recommended to increase the number of meals while reducing their size.	13	11.5	100	88.5	67.0*
10	You should reduce the intensity of the exercise and increase your carbohydrate in the week leading up to the games.	78	69.03	35	30.97	16.4*
11	Liquids can be consumed several times and in small quantities before a match as well as during breaks.	67	59.29	46	40.71	3.9*
12	Processed sugars and carbohydrates should be consumed before training begins.	95	84.07	18	15.93	52.5*
13	There should be a set time period between when you eat and when you train	89	78.76	24	21.24	37.4*
14	The time period in the case of eating protein food and the training date should not be less than an hour to an hour and a half.	84	74.34	29	25.66	26.8*
15	The time period in the case of eating greasy food and the training date should not be less than an hour and a half to two hours.	67	59.29	46	40.71	3.9*
16	The time period in the case of carbohydrates intake and the training time should not be less than two hours.	35	30.97	78	69.03	16.4*
17	Drinks or foods rich in carbohydrates should be consumed 15-30 minutes after the games with amount of not less than 400 calories.	56	49.56	57	50.44	0
18	The 24-hour pre-training or tournament meal must contain: 65% protein - 15% fat - 20% carbohydrates from the player's calories.	88	77.88	25	22.12	35.1*
19	It is preferable 3 hours before the start of the competition to provide the player with carbohydrates in addition to glucose.	35	30.97	78	69.03	16.4*
20	Eating spicy and pickled foods before the performance is useful to stimulate good performance	33	29.2	80	70.8	19.5*
21	The meal before the competition should contain a small amount of sugar and more carbohydrates	46	40.71	67	59.29	3.9*
22	Before the tournament, it is recommended to eat a piece of creamy chocolate.	29	25.66	84	74.34	26.8*
23	In a pre-competition meal, it is advised to increase the intake of spices.	14	12.39	99	87.61	63.9*
24	Adding any of the vitamins before training or competition is not beneficial for performance or improvement of physical condition. Rather, it is a strategy that extends over the length of the preparation period for competitions and training.	22	19.47	91	80.53	42.1*
25	You must refrain from eating any fatty foods before practicing sports activities.	85	75.22	28	24.78	28.8*
26	The pyramid of healthy food for the Mediterranean countries includes six food groups.	82	72.57	31	27.43	23.0*
27	It is necessary to be consistent in eating times as much as possible.	100	88.5	13	11.5	67.0*
28	All oils are dangerous to arteries, heart, and blood vessels.	94	83.19	19	16.81	49.8*
29	Starches should not be consumed with citrus fruits.	85	75.22	28	24.78	28.8*
30	The best timing for consuming orange juice is during or after breakfast.	17	15.04	96	84.96	55.2*
31	The best timing for eating dairy and dairy products at the start of breakfast.	100	88.5	13	11.5	67.0*
32	Fruits should be consumed immediately after the main meals.	100	88.5	13	11.5	67.0*
33	It is preferable to eat green salad in the middle of meals.	100	88.5	13	11.5	67.0*
34	Eating sweets separately from the rest of the meals raises the level of insulin in the blood.	100	88.5	13	11.5	67.0*
35	Protein and acid foods should be eaten at different times.	26	23.01	87	76.99	32.9*
36	It is not recommended to eat two or more types of animal protein at one meal	25	22.12	88	77.88	35.1*
37	It is not recommended to eat foods (protein or starchy) with sugars in one meal.	38	33.63	75	66.37	12.1*
38	I do not mind eating fatty and starchy foods in one meal.	52	46.02	61	53.98	0.7
39	You can only have one or more fruits in one serving.	56	49.56	57	50.44	0
40	It is advised to squeeze lemon on salads and dispense with oils on them.	69	61.06	44	38.94	5.5*
41	Some vitamins do not dissolve except in a greasy medium.	45	39.82	68	60.18	4.7*
42	It is advised to take five meals a day instead of the three main meals.	37	32.74	76	67.26	13.5*
43	It is recommended to take 5 to 6 meals a day instead of 3 main meals.	37	32.74	76	67.26	13.5*
44	The four-timing diet is the best diet for athletes.	43	38.05	70	61.95	6.5*
45	No calcium balance can be achieved in the body without consuming dairy products.	56	49.56	57	50.44	0
46	The heat energy needed for the work of the muscles should be given in the form of protein substances.	49	43.36	64	56.64	2
47	It is important to diversify your food protein sources.	18	15.93	95	84.07	52.5*
48	The post-competition meal is required to contain carbohydrates, protein and fats	100	88.5	13	11.5	67.0*
49	Athletes are allowed to eat open quantities of most foods for fast recovery and increased results in tournaments.	100	88.5	13	11.5	67.0*
50	The components of an athlete's diet vary according to their activity.	100	88.5	13	11.5	67.0*

It is evident from Table (3) that there is a statistically significant difference in students' information about nutrition (before, during, and after) training and competition at a level of significance (0.05) in all phrases of the axis except for phrases (4 and 17). Information (10) is correct information and (16) incorrect information about nutrition before, during, and after training and competition.

This is in agreement with the Sikalidis(2019) ⁽²⁷⁾ that one should not stop eating fats while doing sports, as the body burns the fats in it. Here, the percentage of fats should not fall below 20% to 30% of the daily needs of the body because it ensures skin hydration and maintains soluble vitamins. Glanz (2002) ⁽²⁸⁾ also adds that fats constitute a stumbling block in the way of building muscle as storing fat is easier than Store proteins and carbohydrates, which explains the accumulation of fat around the waist in overweight boys and girls ^(27,28)

Also, the training diet should include the principles outlined in the Dietary Guidelines for Americans and the Canadian Guidelines for Healthy Eating. The fact that the main difference between an athlete's diet and the general population's diet is that athletes need to drink extra fluids to cover the loss of sweat and additional energy to support physical activity. As is well known, it is more appropriate than most of the extra energy that comes from carbohydrates.

The timing and the size of the pre-competition meal have a lot to do with each other. Results of previous studies indicated an improved performance when the number of carbohydrates consumed in a pre-competition meal was about 200-300 grams 3-4 hours before a workout.

Among the most important goals of consuming food during physical exertion is to replace lost fluids from the body and provide it with carbohydrates (about 30-60 grams/hour) to maintain blood glucose levels, and these dietary recommendations are especially important for endurance competitions that last for more than an hour or when the athlete does not consume quantities. Adequate amounts of food and liquids before the competition or when the competition is in extremely hot or cold climates or at altitudes.

One of the most important goals of consuming food after physical exertion is to provide the body with adequate energy and carbohydrates to replace muscle glycogen and to ensure a speedy recovery. Also, the protein consumed after physical exertion will provide the athlete with the amino acids needed to build and repair muscle tissue, so athletes must consume a meal that contains carbohydrates, protein, and fats after the end of the competition or vigorous exercise. ⁽²⁹⁻³³⁾.

Table (3) shows that there is a statistically significant difference in students' information about balanced nutrition and meal planning at a level of significance (0.05) in all of the axis statements except for the phrases (13, 14, 20), and through that, the researcher sees that students have (9) Correct information and (16) incorrect information about meal planning.

Barlow (1998) ⁽³⁴⁾ and Spriet(2019) ⁽³⁵⁾ agree that a person's need for food is linked to providing the body's needs from it so that it can perform its vital functions and efficiently carry out all its activities and daily activities. Human. ⁽³⁴⁻³⁶⁾.

Through this, it is clear that students depend on carbohydrates as an essential component of their daily nutrition. This is in agreement with Abou-Arab (2010) ⁽³⁷⁾stating that: eating carbohydrates during training does not lead to a decrease in the blood sugar level due to increased permeability to muscle cells, which reduces the athlete's need for insulin or changes the absorption of insulin during training. Therefore, carbohydrates that a player consumes during training are complementary to carbohydrates the body needs while performing muscle activity. ⁽³⁷⁻³⁹⁾.

Athletes must also maintain dietary diversity. They can also increase the number and/or size of servings of dairy and protein foods, but their goal should be to maintain the energy levels provided by the various food groups in a manner consistent with those specified in both food public recommendations. Also, athlete's nutrition should be determined by paying attention to the timing of basic meals and snacks. Athletes who perform vigorous training or perform several exercises per day need to eat over three main meals and three snacks a day. ⁽⁴⁰⁻⁴²⁾.

Table (4): Frequencies, percentages, and Ca2 values of the study sample responses on the fourth and fifth axis: general, correct, wrong, and updated concepts related to nutrition and Malnutrition diseases

#	Food (information) elements	Yes		No		Chi-2
		N	%	N	%	
1	Milk consumption in large quantities leads to a deficiency of calcium in the body.	65	57.52	48	42.48	2.6
2	Food rich in cholesterol (liver, kidneys, egg yolks)	33	29.2	80	70.8	19.5*
3	Vitamin (C&B) should be consumed before exercise to boost energy levels.	48	42.48	65	57.52	2.6
4	Vitamin C is the only vitamin that is completely corrupted by cooking.	40	35.4	73	64.6	9.6*
5	Oils and fats should be kept away from air, heat and light.	24	21.24	89	78.76	37.4*
6	Long-term protein intake leads to osteoporosis.	98	86.73	15	13.27	61.0*
7	Oatmeal is the most nutritious cereal among the rest of the grains.	11	9.73	102	90.27	73.3*
8	Increasing the proportion of carbohydrates in the diet increases the body's needs for the required amount of vitamin B1.	10	8.85	103	91.15	76.5*
9	You must rely on utensils made of stainless steel, clay, or glass when cooking, rather than other types.	34	30.09	79	69.91	17.9*
10	Cooking in water or steam is the best way to prepare food.	22	19.47	91	80.53	42.1*
11	Grilling is the ideal way to prepare food.	33	29.2	80	70.8	19.5*
12	The best way to prepare vegetables and fruits for cooking or eating is to cut them as much as possible	5	4.42	108	95.58	93.9*
13	Cholesterol is found in both the yolk and the white of an egg.	11	9.73	102	90.27	73.3*
14	When boiling vegetables, you should use a lot of water to preserve the maximum number of vitamins.	16	14.16	97	85.84	58.1*
15	Meat should be washed thoroughly after purchasing it.	33	29.2	80	70.8	19.5*
16	Eating small fish with their bones was more beneficial than eating large, mature fish.	22	19.47	91	80.53	42.1*
17	Dried fruits contain more calories than fresh fruits.	44	38.94	69	61.06	5.5*
18	It is advised to eat fruits immediately after eating.	101	89.38	12	10.62	70.1*
19	Caution to use microwaving to reheat food.	22	19.47	91	80.53	42.1*
20	Not to eat too much oxalate-rich, such as mango and strawberry.	46	40.71	67	59.29	3.9*
21	There is a close relationship between nutrition and immune strength.	54	47.79	59	52.21	0.2
22	It is advised to drink tea after meals, especially lunch.	71	62.83	42	37.17	7.4*
23	It is recommended to marinate the meat for half an hour before cooking it.	86	76.11	27	23.89	30.8*
24	Most of the outer leaves of leafy greens like cabbage and lettuce should be discarded.	78	69.03	35	30.97	16.4*
25	It is advised to peel most vegetables before preparing them for salads.	98	86.73	15	13.27	61.0*
26	Boiling milk several times is a wrong concept, and it makes it lose most of its vitamins and minerals.	65	57.52	48	42.48	2.6
27	Honey does not increase weight.	33	29.2	80	70.8	19.5*
28	The use of vegetable-based oils and fats in any quantities that do not cause obesity.	65	57.52	48	42.48	2.6
29	Drinking too much water causes obesity.	40	35.4	73	64.6	9.6*
30	High fiber intake hinders iron absorption.	78	69.03	35	30.97	16.4*
31	Malnutrition is the lack of integration and balance in the amounts of nutrients that the individual body needs, including carbohydrates, fats, proteins and mineral salts.	86	76.11	27	23.89	30.8*
32	Among the factors that lead to malnutrition are infection with parasites and infectious diseases	85	75.22	28	24.78	28.8*
33	Excessive carbohydrate intake leads to diabetes.	42	37.17	71	62.83	7.4*
34	Among the results of malnutrition is an imbalance in the body's response to white blood cells formation, loss of immunity, and death.	55	48.67	58	51.33	0.1
35	Vitamin A is essential for healthy eyesight, skin, and mucous membranes.	44	38.94	69	61.06	5.5*
36	Vitamin (B) is the necessary compound for the proper functioning of the digestive, absorption and metabolism processes.	45	39.82	68	60.18	4.7*
37	Vitamin D is necessary for healthy bones and teeth and for rapid fusion of fractures	72	63.72	41	36.28	8.5*
38	Iron, phosphorous, manganese and some other minerals release energy in the body.	41	36.28	72	63.72	8.5*
39	Calcium and potassium regulate heartbeat.	41	36.28	72	63.72	8.5*
40	Iron, phosphorous, and sulfur build hemoglobin in the blood.	50	44.25	63	55.75	1.5
41	Vitamin A deficiency leads to night blindness in the eyes.	53	46.9	60	53.1	0.4
42	Vitamin K deficiency leads to blood clotting and continuous bleeding.	45	39.82	68	60.18	4.7*
43	Vitamin C deficiency leads to scurvy and anemia.	33	29.2	80	70.8	19.5*
44	Iodine deficiency leads to an enlarged thyroid gland, which may affect the function of the trachea and breathing.	35	30.97	78	69.03	16.4*
45	Lack of protein in the diet can lead to quasicore disease.	30	26.55	83	73.45	24.9*
46	Excessive intake of vitamin D leads to delayed growth and the occurrence of postural abnormalities.	44	38.94	69	61.06	5.5*
47	Eating some raw food without cooking (such as cabbage and turnip) works to impede the absorption of iodine and its utilization in the body.	27	23.89	86	76.11	30.8*
48	Drinking coffee after a meal blocks iron absorption.	67	59.29	46	40.71	3.9*
49	Infectious diseases are one of the main reasons that lead to fluid loss in the body.	88	77.88	25	22.12	35.1*
50	Anemia occurs for several reasons, including drinking caffeinated beverages in addition to chocolate, immediately after eating.	34	30.09	79	69.91	17.9*

It is clear from Table (4) that there is a statistically significant difference about the general, correct, wrong, and new concepts related to nutrition at a level of significance (0.05) in all the expressions of the axis except for the statements (1, 3, 21, 26, 28).

Manore(2009)⁽⁴³⁾ points out that the importance of food in human life becomes clear as it is the major source of providing it with energy and maintaining the health and vitality of the body. Therefore, good nutrition must be integrated and balanced in its nutritional elements.

The results of studies conducted on the interaction of nutrient elements showed the necessity for a person to have balanced diets, as the presence or deficiency of some nutrients may lead to an impact on human health and thus the occurrence of diseases.⁽⁴³⁻⁴⁵⁾

In this regard, Musaiger(2009)⁽⁴⁶⁾ explains that it is one of the most important wrong food habits prevalent in Egyptian society in particular

- Drink tea and coffee for breakfast eating no other foods.
- The excessive use of salt in food irregularly, which leads to exposure to diseases.
- Drinking tea after eating meals, and leads to depriving the body of important mineral elements, especially iron, as tea negatively affects the body's ability to absorb these mineral elements.
- Eating while watching TV causes you to eat large amounts of food, along with a lack of interest in the chewing process, which leads to cases of indigestion.
- Excessive consumption of prepared foods, which are often considered unbalanced meals.
- Exercising some bad habits in preparing food that leads to losing the vital and nutritional value of some nutritional components, especially vitamins and mineral salts.⁽⁴⁶⁻⁴⁸⁾

It is clear from Table (4) that there is a statistically significant difference in students' information about malnutrition diseases at a level of significance (0.05) in all statements of the axis except statements.

Musaiger (2011)⁽⁴⁹⁾ and the US National Center for Chronic Diseases Prevention and Health Promotion explain that the fiber found in abundance in fruits and vegetables contributes to the prevention of many diseases.⁽⁴⁹⁻⁵¹⁾

Parke D 1994⁽⁵²⁾ also notes that a diet rich in fruits and vegetables, fish, dairy products, and whole grains provides protection from some diseases, and the fiber found in abundance in vegetables, fruits, and legumes contributes to the prevention of many diseases and the treatment of some of them.⁽⁵²⁻⁵⁴⁾

Field studies also show the poor nutritional status of adolescents. In the United States of America, for example, it was found that 84% of adolescents eat large quantities of fat, and that 91% of them largely eat saturated fat, and that the consumption of vegetables and fruits is very low about the daily need.^(55,56)

Through this, researchers see that proper nutritional behavior is one of the most important factors of a healthy structure, and healthy food is a safe path to good health. While unhealthy eating behavior has a greater impact on health, present, and future, as it is one cause of high blood pressure and the emergence of diabetes, obesity, and osteoporosis. Increased lipids in the blood, dental diseases, and many chronic diseases.

Table (5): Frequencies, percentages, and Ca2 values of the study sample responses on Axis VI: Food culture for athletes

#	Food (information) elements	Yes		No		Chi-2
		N	%	N	%	
1	Does exercise after eating interfere with the digestive process	12	10.62	101	89.38	*70.1
2	Is there a risk in swimming immediately after eating	100	88.5	13	11.5	67.0*
3	Are meal times changed during training periods?	19	16.81	94	83.19	49.8*
4	Are meal times changed during competition periods?	25	22.12	88	77.88	35.1*
5	Are liquid foods beneficial and valuable for athletes	79	69.91	34	30.09	17.9*
6	Do you recommend players to take vitamins during training or competitions?	85	75.22	28	24.78	28.8*
7	Is thirst an indicator of water need during competitions?	100	88.5	13	11.5	67.0*
8	Is an athlete allowed to drink water during his training period?	66	58.41	47	41.59	3.2
9	Is there a real value to the dietary supplement or drink for athletes?	82	72.57	31	27.43	23.0*
10	Do these drinks satisfy the athlete more in terms of thirst than water?	31	27.43	82	72.57	23.0*
11	Does eating yogurt delay performance	49	43.36	64	56.64	2
12	Do sugar or glucose tablets help improve performance?	88	77.88	25	22.12	35.1*
13	Do high amounts of vitamins improve performance?	71	62.83	42	37.17	7.4*
14	Is an overdose of some vitamins harmful?	52	46.02	61	53.98	0.7
15	Does the athlete need an extra amount of potassium and magnesium?	85	75.22	28	24.78	28.8*
16	Does iron deficiency affect the athlete?	95	84.07	18	15.93	52.5*
17	Is it necessary to reduce the use of salt in food	90	79.65	23	20.35	39.7*
18	Is training and an empty stomach harmful to an athlete	89	78.76	24	21.24	37.4*
19	Do you use specific food programs with players during training periods?	22	19.47	91	80.53	42.1*
20	Do you use specific food programs with players during sports competitions?	19	16.81	94	83.19	49.8*
21	Is it necessary to eat a meal after the competition?	100	88.5	13	11.5	67.0*
22	Does eating a large protein meal before the match increase the activity of the player?	100	88.5	13	11.5	67.0*
23	Does drinking tea before a match increase the player's ability to concentrate	90	79.65	23	20.35	39.7*
24	Do females in adolescence need more food than at any other stage?	100	88.5	13	11.5	67.0*
25	Does the amount of food differ in females from males?	100	88.5	13	11.5	67.0*
26	Does the quality of food differ in females from males?	100	88.5	13	11.5	67.0*

It is clear from Table (8) that there is a statistically significant difference in the students' information about the nutritional culture of the athletes at a level of significance (0.05) in all the statements of the axis except for the phrases (8, 11, 14). Through this, the researcher believes that the students have (11) information. True

and (15) false information about malnutrition diseases, and therefore they directly need nutritional education since the first year.

We can notice that there are statistically significant differences in the question (Are mealtimes changed during the training period?) In favor of (no) by 83.19%.

This is in agreement with ALFaris(2015)⁽⁵⁷⁾ who states that: the times when you exercise must be taken into account according to the meals. After lunch, one must wait two to two and a half hours before doing any sporting activity. After the snack, the waiting time becomes one hour. As for after eating fruits or juice, the waiting period is only half an hour. This schedule is necessary to avoid extreme fatigue caused by low blood sugar. It also constitutes the primary time for the sugar to reach the blood without causing fatigue^(57,58).

This is also in agreement with the study of Baranowski and others (2011)⁽⁵⁹⁾, where it was found that the majority of undergraduate youth are exposed, permanently, but repeatedly, to neglecting one of the main meals, at a rate of 78.7%. (138: 17), and this confirms the results of the study of Singler (2015)⁽⁶⁰⁾, as there are statistically significant differences in the variable of foods that help in building the body around the food that is bought from the school buffet and eat breakfast before going to school, reaching a rate of (83.3%). Yes) versus (16.7% no).^(59,60).

Through this, researchers see that nutritional behavior is one of the most important health indicators that reflect community awareness, and determine the future vision for health and nutritional planning for community members. Whoever contemplates the results of this study finds that my nutritional behavior needs more care and attention.

Conclusions

1- The existence of a statistically significant relationship at the level of (0.05) in all areas of the cognitive test of food culture for students of the College of Applied Studies and Community Service at Imam Abdulrahman bin Faisal University.

2- The spread of some wrong information and habits of food culture for students of the College of Applied Studies and Community Service at Imam Abdulrahman bin Faisal University.

Recommendations:

1- Paying attention to the practical and field aspects as a basic method in teaching health and fitness, which

helps to confirm the practical practice of information related to food and nutrition in the daily lives of students and students.

2- The integration of educational messages into the curricula (courses) of the different study groups.

3- Conducting more studies and scientific research to track this phenomenon and study the feasibility of the proposed nutritional and family changes.

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