

The Effect of Physical Education and Sport Classes in Intermediate Stage on Students with Type 1 Diabetes (Blood Sugar)

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Abstract:

Diabetes is one of the most prevalent chronic diseases in the world, and is characterized by a high blood glucose level due to a lack of insulin secretion or its impaired effectiveness. With the increasing rates of infection, adopting a healthy lifestyle has become essential to prevent complications and limit its progression.

The systematic and safe integration of physical activity into the treatment plan of a diabetic patient—whether type 1 or type 2—is a key pillar along with proper nutrition and medical follow-up, making exercise an indispensable element in prevention, treatment and achieving a holistic health balance.

For children with diabetes, exercise is a "natural medicine" that goes beyond the limits of fitness, acting as a vital stimulant to increase the sensitivity of cells to insulin and safely stabilize glucose levels. It is not just a recreational activity, but a preventive strategy that protects the child's arteries and heart from future complications, and gives him a strong body capable of facing the challenges of the disease with high efficiency. Psychologically, the movement contributes to enhancing the child's self-confidence and ridding him of the feeling of difference by reducing the stress and anxiety associated with the disease, which transforms the disease from a social obstacle to a motivation for athletic excellence and integration with peers.

Keywords: Physical Education and Sports, Diabetes

Introduction:

Physical and sports education in its various branches helps to a great extent to instill moral and social qualities, and the development of good habits, as it accustoms students to the speed of attention and movement, as it prepares the youth in a sound and integrated preparation in all physical, health, psychological and mental aspects, and it is also an opportunity to discover the ability of the body, what it can do and how it can acquire various skills (Ibrahim Hamed Qandil, 1998). Scientific topics in the field of sports, as sports is a means for a better healthy life, and health should be a goal that

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the student maintains when practicing physical and sports education, as many scientific studies have witnessed the impact of practicing physical education and sports on the functions of the body's organs, and the extent of the effects resulting from physical inactivity that involves the spread of many diseases, which are called inactivity diseases such as cardiovascular diseases, obesity and high altitude. Blood pressure, cholesterol, etc. Including diabetes, which is considered one of the chronic diseases that have been challenged by genetic or environmental factors and which are greatly affected by exercise, based on the role played by physical education and sports in improving the health status of people with chronic diseases in general and diabetic patients in particular, this has been confirmed by the study of (Mary, 1989) and the study of (King, 1984), and accordingly, the study of the effect of physical education and sports on students with diabetes has been emphasized. Type I diabetes (blood sugar) in the intermediate stage (11-13 years) for the province of Oran.

Research Problem:

Diabetes is one of the most common diseases nowadays, and the lack of control of this disease leads to many complications such as high lipid percentage, blood pressure, atrophy of the limb muscles and inflammation of the peripheral nerves, which sometimes leads to leg amputation, which may be a cause of death, and this is the source of the problem. Therefore, it is necessary to use all methods and means that help avoid the complications of this disease, as physical activity and sports play an important and great role in the lives of sick individuals, as studies indicate that physical activity is an important source of reducing diabetes and doctors recommended practicing physical and sports education because of its positive effects on the health of people with diabetes in general, and the age group (11-13 years) especially during the physical education and sports class within the institution.

Hence, this study came to find out the effect of physical education and sports class on students with type 1 diabetes (blood sugar) in the middle stage (11-13 years) in the province of Oran.

This is what led us to the following question:

- General Question:

- Does the physical education and sports class affect the students of type 1 diabetes (blood sugar) in the intermediate stage (11-13 years) in the province of Oran?

- Partial questioning:

- Are there any statistically significant differences between the pre- and post-tests?

Research Hypotheses:

General Hypothesis:

Yes, the physical education and sports class has an effect on blood sugar in students with type 1 diabetes in the intermediate stage, by adjusting it.

Partial hypothesis:

Yes, there are statistically significant differences between the pre- and post-tests.

- Research Objectives:

- The aim of the study was to find out the effect of physical education and sports classes on students with type 1 diabetes (blood sugar) in the middle stage (11-13 years) in the province of Oran.

- The importance of the research:

- The importance of the research lies in identifying the effect of the programmed physical education and sports class on the students of type 1 diabetes patients (blood sugar) in the intermediate stage (11-13 years) in the province of Oran, which will increase the enrichment of the knowledge based on it when conducting some tests for the category of students with diabetes in the intermediate stage. Educates professors on how to deal with diabetic patients.

Explaining the search terms:

- Physical and Sport Education:

PUTCHER defined it as an integrated part of public education that aims to prepare the decent citizen in the psychological and social aspects through the colors of the selected educational activity in order to reduce these outcomes (Muhammad Hussein Al-Shehat, 2007).

VERIE argues that physical and physical education is an integral part of public education, and that it occupies the motivations of activity that exist in each person for development, both organically and emotionally. (Ibrahim Mufti, 1996)

- Health:

- The scientist defined health as a state of relative balance of the various functions of the body, and it results from the adaptation of the human body to the harmful factors to which it is exposed, and he also said that the body's adaptation to these factors is a positive process that maintains the body's balance.

The most accepted definition of the World Health Organization (OMS): It states that health is the state of the aesthetic and mental integration of the individual and not just the absence of disease and impairment (Muhammad Safouh Al-Akhras, 2001).

- Diabetes:

It is the high blood sugar above normal (fasting blood sugar above 126 mg/dL) as a result of a deficiency in the secretion of the hormone insulin, or its ineffectiveness or both (Mustafa, 2005).

The World Health Organization (WHO) also defines it as a chronic condition caused by high blood sugar levels, which can be caused by a combination of environmental and genetic factors. (Anfal, 2022)

So it is a disease characterized by a skeletal disorder and an abnormal high blood sugar concentration caused by a lack of the hormone insulin, low tissue sensitivity to insulin, or both. Diabetes leads to serious complications or even premature death.

- Practical aspect:

- Chapter One: Methods and Methods

Research Methodology: The research students rely on the descriptive method in the field method as the method of study that they deem appropriate for the subject of study.

- **Research Population:** The study will be conducted on some intermediate students (11-13) in the province of Oran who are diabetic.

Research Sample:

The research sample was selected from some of the averages of the province of Oran, as it was estimated at 12 students, which is an intentional sample of intentional intentions.

Research Areas:

- **Human field:** The study was conducted on 12 middle school students (7) males and (5) females.
- **Spatial domain:** The study was conducted on some averages of the province of Oran, and the scale forms were distributed in the stadium in addition to conducting tests before and after the class.
- **Time Zone:** The study was conducted in two time stages, the first was dedicated to the theoretical study starting from the end of November and ended at the end of February 2020, and the second was dedicated to the applied study and started after the end of the theoretical study.

- Research Tools:**Form for students with diabetes:**

A form consisting of 16 phrases was designed after it was modified and drafted by the referees and produced in its final form, and the form was in the form of three axes: the health aspect, the nutritional aspect, and the activity aspect, all revolve around the hypotheses of the study.

Scientific conditions for investment:

- Measure honesty
- Stability measurement
- Objectivity

Testing performed on students with diabetes:

- A test was conducted on students with diabetes, which includes two pre- and post-tests represented in measuring blood sugar before and after the physical education and sports class using a glicometer, so that age, weight and height were taken into account using the following devices: a scale and a longitudinal meter.

- Scientific Conditions for the Test:

- In order to be reliable and reliable, the test results must meet the following conditions:

- Homogeneity:

- In order to know the homogeneity of the sample members, we tested the Student T-test.

- Statistical Methods:

- Statistics is the science that looks at collecting and organizing data, as well as analyzing it, extrapolating the results, and making decisions based on it by answering questions and test results, and in our research, we relied on
- Student Test.
- Percentage.
- $\text{Percentage} = \frac{\text{Number of repetitions} \times 100}{\text{total number of repetitions}}$

Chapter Two: Presentation and Analysis of Results

Sample	Post test		Pre-test		T. Calculated Value	T.Tabular Value	Freedom level	Significant level	Meaning of Significance
	Arithmetic Mean	Standard Deviation	Arithmetic Mean	Standard Deviation					
12	2.76	1.35	2.49	0.70	1.10	2.20	11	0.05	Non significant

The table (1) shows the statistical results of the blood sugar test before and after the physical education and sports class on students with diabetes.

Review:

- The arithmetic mean of the sample in the pre-test was 2.76 and the standard deviation was 1.35, while the arithmetic mean in the post-test was 2.49 and the standard deviation was 0.70, while the calculated t value was 1.10 and the tabular t value was 2.20 at the significance level of 0.05 and the degree of freedom was 11, which indicates that there is no statistical significance between the results of the pre- and post-test of the latter, and therefore there are no differences.

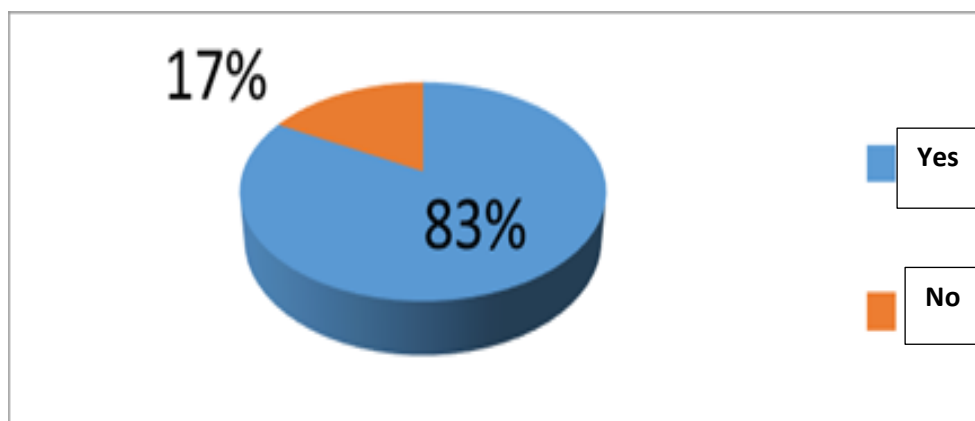
Conclusion:

We conclude that there is no effect of physical education and sports on the health of students with diabetes (blood sugar).

The first axis:

Health aspect:

1) Are you taking medication for this disease?



Pie Chart No. (1) Indicates the rate of medication taken for the disease

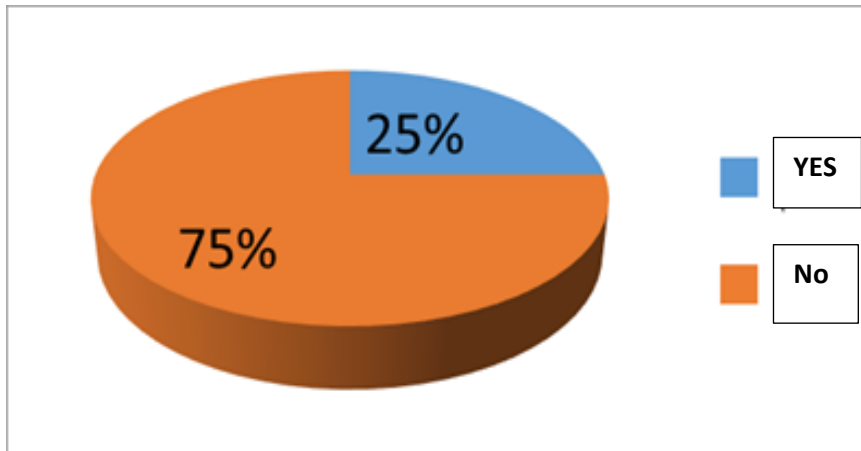
Analysis: It is clear from Table (1) and Pie Chart (1) that 83% of students with diabetes take a specific medication for this disease while we find that 17% do not take any specific medication.

Conclusion: We conclude that the majority of pupils with type 1 diabetes take medication specific to the disease.

The Third Theme:

Activity aspect:

Does physical education and sports affect your health in terms of blood sugar?



Pie Chart No.(2) Shows the effect of the physical education and sports class on blood sugar

Analysis: It is clear from Table (1) and Pie Chart (2) that that 75% of the sick pupils do not have an effect on their blood sugar, while 25% of them have a physical education and sports education class that affects their blood sugar.

Conclusion: We conclude that the physical education and sports class does not affect the health of diabetic students in terms of blood sugar.

Contesting the results:**Discussion of the results and their comparison with hypotheses:****- Hypothesis discussion:**

Through our analysis of the results of Table (1), which represents the statistical results of the blood sugar test before and after the physical education and sports class on the students of diabetes patients, as well as the results obtained during our analysis of the results of the questionnaire, which are represented in percentages of the answers, it became clear that the physical education and sports class does not affect the blood sugar of the students of type 1 diabetes patients, due to the nature of the class that included mixed activities. Between both strength and persistence of moderate intensity (see Appendices).

According to what we have discussed in the analyses, we found that the majority of students with type 1 diabetes had the same characteristics with regard to this type of disease, and if we link the results of Table (1) with the results of the questionnaire tables, we find that the type 1 diabetic patient has no objection or difficulty in practicing the activity within the physical education and sports class programmed by the Ministry of Education.

Referring to the general hypothesis, we find that it is not confirmed, because there is no effect of the physical education and sports class on the students of diabetic patients, so the hypothesis is zero.

Therefore, we find that the partial hypothesis was also not fulfilled due to the lack of statistical significance of the differences between the pre- and post-tests.

Conclusion:

At the end of this experiment, we concluded that there was no harm to students with type 1 diabetes in the intermediate stage (11-13 years) in practicing the physical education and sports class, and this was confirmed by the absence of a blood sugar difference in both tests (before and after the physical education and sports class).

Recommendations:

- Integrating students with diabetes in the physical education and sports class and not isolating them out of fear for their health.
- Facilitating and encouraging researchers by officials to carry out such studies in order to contain the phenomenon.
- Preparing and disseminating national guidelines on physical and sports education for health.

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