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The Effect Of A Healthy Fitness Program On Improving The Physical Fitness Level Of Students With Lower Levels Of Physical Fitness

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Abstract

Objective: This research aimed to design a specialized physical nutrition program for first-year students in the College of Physical Education who have low levels of physical fitness and to assess its impact on specific components of health-related physical fitness, namely flexibility, strength, muscular endurance, and respiratory endurance.

Materials and Methods: The study involved first-year students at the College of Physical Education and Sports Sciences, University of Dhi Qar, identified as having low physical fitness levels. It employed an experimental research approach using a single-group pre-test and post-test design, which was deemed appropriate for the study's objectives. The research was conducted from December 6, 2023, to April 8, 2024, utilizing the college's sports fields and physical fitness laboratory as the implementation sites. The main hypothesis proposed that there would be statistically significant differences at the 0.05 level between the average scores of the pre- and post - tests in favor of the post-test results.

Results: The findings of the study indicated statistically significant improvements in all tested components of health-related physical fitness. The post-test scores showed clear progress compared to the pre-test scores in flexibility, strength, muscular endurance, and respiratory endurance, thus confirming the effectiveness of the physical nutrition program. **Conclusion**: It was concluded that the physical nutrition and health program effectively improved health-related fitness components among students with initially low physical fitness levels. Furthermore, the study demonstrated that increasing the amount of time spent on physical activity is positively associated with improved fitness. Therefore, the integration of such programs into undergraduate physical education curricula is essential, particularly for students who begin their studies with below-average levels of physical fitness.

Keywords: Healthy Fitness Program, Physical Fitness, Low Fitness Level, University students.

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Introduction

Nutrition is one of the most important factors in improving physical efficiency, increasing recovery speed, and resisting fatigue. It represents a model of communication between the external environment and the human body. Malnourishment has profound effects on blood water and blood pressure dynamics during exercise that can lead to deleterious consequences. Skipping the challenge or backing down later in the day can result in chronically low blood water levels and blood pressure which can cause weakness, fatigue, and energy loss.

Impaired concentration, fatigue, and apathy also might result from suboptimal micronutrient status, including an inadequate intake of some vitamins or minerals.

Physical activity decreases during adolescence, which is a sensitive period for the reduction in lifestyle physical activity. The reduction in physical activity has led to the increase of weight gain and being underweight, rise of heart diseases, obesity, as well as associated problems like diabetes, high blood pressure, heart attack, anxiety etc. The connection between a lack of physical activity and most of the diseases of modern life is well established

. As a result, there has been growing interest in preventing these diseases through early physical activity, particularly in educational institutions such as schools and universities. Colleges of physical education, where physical development is a key part of the curriculum, play a significant role in raising physical fitness levels among students. Physical fitness is an important part of overall well-being, encompassing health, psychological, physical, and social fitness.

While traditional sports have long been the focus of physical education programs, the modern era's demands, with its vast electronic capabilities, have shifted priorities. Today, physical fitness and health have become essential components of physical education, especially during the period in which individuals engage in sports. In fact, sports are now regarded as a national security concern, and the inclusion of physical fitness and health curricula in schools, institutes, and universities is seen as a step toward achieving sustainable development and preserving human energy.

Research Problem:

The research problem arises from the following observation: students in secondary schools often spend long periods studying, leading to a lack of physical activity. This inactivity has caused many students to experience slight weight gain or thinness. Upon enrolling in various colleges and undergoing physical fitness tests, it becomes clear that these students have low levels of physical fitness. The researcher, through their role as a member of the medical examination committees for students applying to the

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College of Physical Education and as a professor of health courses, noticed that many students admitted to the College of Physical Education had low physical fitness scores, often ranking in the lowest quartile of college admissions. This observation led the researcher to explore the impact of a physical nutrition program on improving physical fitness and health among these students, aiming to identify potential solutions and enhance their physical fitness levels to match their peers.

Research Objectives:

1. To design a specialized physical nutrition program for first-year students at the College of Physical Education with low physical fitness levels.

2. To assess the effect of the physical nutrition program on key components of health-related fitness among students with low physical fitness levels at the College of Physical Education, University of Dhi Qar.

Research Hypotheses: The research hypothesizes that there will be statistically significant differences at the significance level of (0.05) between the mean scores of the pre- and posttests of the research sample in some components of physical fitness (flexibility, strength, muscular endurance, and respiratory endurance), with improvements favoring the post-test results.

Research Areas:

1. Human Sphere: First-year students at the College of Physical Education and Sports Sciences, University of Dhi Qar, with low physical fitness levels.

2. Temporal Domain: From December 6, 2023, to April 8, 2024.

3. Spatial Domain: The playgrounds and the physical fitness laboratory of the College of Physical Education and Sports Sciences, University of Dhi Qar.

Materials and Methods

Study Participant

The researcher used the experimental method with a single-group experimental design, which was considered more appropriate for the nature of the study. The sample of the study included the first-grade students at the College of Physical Education and Sports Science in Dhi Qar University for the (2023-2024) academic year. The purposively sampled

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research sample consisted of 35 first-year students who had low levels of fitness. These students were selected based on their physical fitness scores, which ranged within the last quarter of the admission criteria for the College of Physical Education and Sport science at Dhi Qar University. Participants were deliberately selected on the basis of their low fitness, as indicated by their first fitness scores, and their availability to participate in the study. The aim was to determine the effect of an exercise nutrition program on the youth's physical fitness and health.

Study Organization

The data onheiteen-, first-year- and second-year years students were obtained using stethoscope, medical scake, measuring tape, stopwatch and flexibility measuring instrument or Swedish bench with ruler. Participants' physical fitness was evaluated by flexibility, muscular endurance, muscular strength, and cardiorespiratory fitness tests. The reach of the fingertips assessed by how many centimeters a person reaches in an arm extension test was used as a measure of flexibility. Dynamic muscle strength was tested in the following ways: strength of trunk muscles (extenders). The muscle endurance test was to count the number of knee lifts in one minute. Cardiorespiratory fitness was estimated using a 12-minute run or walk, with distance traversed converted into participant fitness status using age and sex specific reference tables.

The physical nutrition program was carefully designed to include standardized ratios of essential nutrients (carbohydrates, fats, and proteins) specifically tailored to the participants' needs. The goal of this program was to restore their nutrient intake to normal levels, taking into account their specific physical condition. The fitness program focused on improving key components of physical fitness, such as flexibility, muscular strength, and aerobic endurance. This program was implemented over 12 weeks, with three weekly 60-minute training sessions. The structure of each session included a warm-up, a core exercise, and a cool-down. The warm-up prepared the body for exercise, the core exercises focused on achieving the desired physical improvements at moderate intensity (between 60% and 70% of maximum heart rate), and the cool-down helped the body recover and relax the muscles.

Statistical Analysis

Before starting the main experiment, a pilot study will be conducted to test the tools and devices used in the investigation. This pilot study served to detect any obstacles and instruments were adjusted as necessary to ensure their validity and reliability. The findings indicated that the instruments and equipments which were implemented in the research work were very good and suitable for the study. After the pilot, the

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formal experiment was performed starting with an initial measurement and evaluation on June 4, 2023. Training programme The intervention was carried out for 12 weeks, three times a week. After nutritional and exercise intervention, all participants were also submitted to post-measurements. Pre and post measures were analyzed by statistical means, focusing on possible significant differences in participants' physical fitness according to research hypotheses.

Results

This chapter provides the analysis of the findings of Chapter 4, which was derived from the experiment. Table (2) Anxiety as a Research Variable The results are presented in the following table, which illustrates means, standard deviations, t-values, and significance values for the Pre and Post-Measurement scores of the research variables.

Table (2) displays the test result for arithmetic means, standard deviation, t values and significance values of research variables.

Variables	Unit of Measurement	Sample Number	Pre-Test		Post-Test		T-Value	Sig
			Arithmetic Mean	Standard Deviation	Arithmetic Mean	Standard Deviation		
Flexibility	cm	35	5.30	0.33	7.45	0.92	14.15	0.00
Muscular Strength	kg		13.07	0.763	14.87	0.445	26.45	0.00
Muscular Endurance	repeat		18.07	2.23	20.44	0.37	6.44	0.00
Cardiorespiratory Fitness	milliliter		19.09	0.920	22.46	0.545	22.65	0.00

However, the results in the first data in Table (2) reveal that for all variables studied, there are statistically significant differences between the pre- and post-test. The t-values along with the p-values (sig) indicate that all components have shown

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statistically significant improvements, which is less than 0.05, which again supports the effectiveness of the program without nutritional as well as physical program.

Discussion

The highlighted differences between pre and post test results can be attributed to the effect of used physical and nutritional treatment. This program integrates anaerobic exercise and individualized nutrition approach to rehabilitating students with poor physical fitness. This finding is in line with the report of Hazza bin Mohammed Al-Hazza (2009) who supported that regular physical training including aerobic exercise is important to improve body composition and to enhance fat burning temperature. Our results also reconfirm the metabolic benefit of the training-induced nutritional component of the program with healthier fats (olive and flaxseed oils), lower starches and sugars and higher protein ingestion. These modifications are also in line with other studies which have concluded that dietary changes play a major role in enhancing physical fitness. [ID:0085] Bahaa El-Din Ibrahim Salama (1990) also endorses the beneficial effects of these dietetic manipulations quoting literature showing that: "lipolysis increases as a result of regular physical training" and that "muscular endurance and general fitness are improved."

Additionally, the increase in flexibility and in muscle strength and muscle endurance, as shown by this study, is in agreement with research work of Abu El-Ela Ahmed Abdel Fattah (1997), that regular physical activity promotes joint flexibility and muscle strength. It's a crucial element to keep your joints healthy and improve your performance in sports as well as increasing strength. Al-Hazzaa Mohammed Al-Hazzaa (1997) also advocates for increased muscle strength< a key component of physical fitness.Discounting muscle strength is important for carrying out daily activities such as walking, sitting and lifting objects. Strength is an important component of general fitness for both men and women, and enables balance of the body and mind.

In addition, findings from this study are in agreement with that of Hussein Dari et al. (2020, who showed that physical fitness programs have a significant effect on physical performance and health habits in students. These programs help students develop healthy habits which support the maintenance or reduction of body composition, and at the same time, they lead to increased motivation for physical activity, ultimately contributing to improved physical status and health status.

In summary, the findings of this study give strong evidence that a physical nutrition training program systematically improve the poor physical condition for the low physical fitness students. The gains in muscular strength and endurance and cardiorespiratory fitness from enhanced flexibility show that exercise should be combined with tailored nutrition to increase sport proficiency in athletes. These results

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confirm that both programs are effective in improving physical fitness, and can therefore be further applied in similar populations.

Conclusion

The results obtained in this study, show how a fitness programme significantly promoted other aspects of physical fitness and health components. The findings clearly indicate that the more time in the day spent exercising consistently is directly related to an increase in this overall fitness level. This emphasizes the relevance of regular physical activity for health promotion, particularly in people with low physical fitness. At the higher education level, developing a fitness programme is necessary, particularly for students with poor physical fitness. The programme, which is in addition to existing curriculums in physical education departments, will help students to enhance their physical fitness as they work towards their academic objectives. If you do this, you not only help students during their years of study, but you gift them with the knowledge and the habits they will need to be healthy people for all of their lives.

Several suggestions may be made from these findings. The first and most important point is that we need a physical health program during undergraduate studies to be developed, especially for the students who are in low fitness. This will lead to better overall health and fitness which in turn will help them to do better in school and in sports. And education workshops can be organized to show the importance of moderate exercise in the Community and throughout the life span. Such workshops can contribute to a culture of health and fitness in the university community by encouraging the benefits of physical activity. And, the last but not least, the required capacity must be developed and tools and resources made available to support a physical health program. consist in providing you with access to adequate on-campus and off-campus Equipment (that is, facilities) to allow you to achieve and operationalize your participation in the physical activity and Health promotion programs.

Conflict of interest

Have no conflict of interest

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