

The Effect of a Proposed Training Program to Develop the Element of Flexibility among Students of the Faculty of Physical Education and Sports Sciences at the Hashemite University

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Abstract

This study sought to determine the impact of a suggested training program to develop the aspect of flexibility of the students of the Faculty of Physical Education and Sports Sciences at the Hashemite University. The sample of the study consisted of (60) students enrolled in the Physical Fitness Course at the Faculty of Physical Education and Sports Sciences at the Hashemite University, who were chosen intentionally, and after collecting the relevant data, they were processed using descriptive statistics represented by means, standard deviations, percentages, and the application of the (T) test for independent samples, one-way multiple analysis of variance test (One Way ANCOVA) to detect differences between the experimental and control groups on all study variables.

The findings demonstrated that the suggested training program was unique in fostering flexibility among the study participants, as the experimental group outperformed the control group.

Keywords: ANCOVA, Physical Fitness, Flexibility.

Introduction

By utilizing training programs that focus on improving all aspects, whether physical or skillful, the ideal, modern, and advanced training should take into account the diversity in the various training methods and means. This requires great skill in developing these programs to be useful and have an impact on the training process until the player and the coach reach the desired goal with the least amount of time and effort needed (Mahgoub, 2000). Sports training, according to Weineck (1986), is the process of preparing an athlete physically, mentally, tactically, intellectually, and emotionally through physical activity.

According to Fathi (2021), each sports coach has their own methods for training, analyzing, and diagnosing all the different components of the training process, in addition to the established scientific foundations and guidelines that aid the sports coach in igniting the athlete's maximum physical and intellectual effort in order to achieve the desired outcome. This was supported by Abu El-Ula (2012), who noted that the goal of

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sports training is to help athletes perform at high levels while spending the least amount of money possible.

Components of general fitness include the growth and development of all physical fitness components, which serve as the foundation for the development of specialised physical fitness (Al-Basati, 2015). One of the most crucial prerequisites for the sports training process is the presence of physical fitness components, and once the sports training process has begun, the development of these components moves in the same direction because the improvement in these components is a result of the responses to the training process (Hammad, 2001).

The ability to carry out motions for a variety of purposes is referred to as flexibility (Omran, 2015). One of the most crucial components of physical fitness is flexibility since an athlete who possesses it will be able to employ the other components of physical fitness more effectively and quickly to advance their performance and development. The flexibility's flaw as a result Each sport has its own flexibility, thus the process of building flexibility is best attributed to the player's performance as well as his talent and physical level when the player results in a bad degree of athletic achievement (Allawi, 1992).

Al-Basiouni and Al-Shati (1992) noted that flexibility is a crucial component of physical fitness during athletic performance because it is formed with other physical characteristics, where flexibility exercises prevent sports injuries that may be exposed to the athlete, and since the term flexibility is associated with the joints, it works to increase the range of motion of the joint and thus the optimal use of force in some sports activities. If flexibility is as important to physical fitness as other physical characteristics, then flexibility exercises can also help athletes avoid injuries (Assi, 2017).

Each sort of sport necessitates the availability of performance-related physical fitness components, particularly the component of flexibility. Hassanein and Abdel Moneim (1997) mentioned that the important basis in the training process is the availability of elements of physical fitness on which other components and elements of sports training are built. According to Nikituk (1989), the elements of physical fitness must be present and available during the training process for a specific sport, especially the element of flexibility, with which many other elements of physical fitness are associated. The training process also calls for a variety of strategies, methods, and means in order to get the player to the highest levels and achieve the goals that are expected of him. As it has been stated, the training method is a thorough one that draws on both theoretical and practical foundations to give the player the ability to stay current with all advancements in the sport and achieve the highest desired levels.

Problem of the study

Through the researchers' knowledge of the research done in this area of study, their accumulated experience in instructing, training, and physically qualifying students in the Faculty of Physical Education and Sports Sciences through teaching the course of physical fitness and physical preparation at the Hashemite University, and by preparing them as necessary to pass the practical materials required of them for the major in sports management and training.

The study's issue arose when the researchers discovered that the students enrolled in the Faculty of Physical Education and Sports Sciences lacked the physical fitness components that would have affected their admission to the faculty, especially the component of flexibility, which is thought to be one of the crucial components in passing the tests assigned to the Faculty of Physical Education and Sports Sciences, as most of the accepted students in faculty may have engaged in physical activity. In addition to the researchers noticing a significant lack of flexibility during the teaching of physical fitness and physical preparation, and therefore it may affect primarily the general health of the

student in addition to its impact on the rest of the elements of fitness. and thus the low mark required of him to pass these subjects.

The researchers conclude that if this element is given the attention it needs to develop during the training process, it will positively impact the other components of physical fitness. As a result, this component may be required in other study materials within the study plan, such as gymnastics, self-defense, and many other subjects that depend on its presence for the technical performance and skills required of the student in these subjects.

Importance of the Study

The importance of this study stems from the following:

- attempting to find a solution to the issue of the test's flexibility component's weakness for students in the physical preparation and fitness course.
- This element and the other components of physical fitness that are required of them reflect positively on the age group targeted for the study sample since they are in a stage of rapid development and learning that is necessary for stability purposes.
- It is an attempt by the researchers to develop the outcomes of various physical fitness components, particularly flexibility, which is thought to be the simplest of the components that are expected of them in mid-semester and final tests and where the student can earn the most points.
- Additionally, the researchers hope that this study will help build a database and information on this topic, assess the effectiveness of the proposed training program to foster flexibility among students at the Faculty of Physical Education and Sports Sciences at the Hashemite University, and recognize the benefits of fostering flexibility and the drawbacks of addressing it so that academic institutions and centers can benefit from it. Since that students are the primary target of this study, there is a good correlation between scientific research and individuals working in the sector of education.

Objective of the study

This study aimed to identify the effect of a proposed training program to develop the element of flexibility among male students in the Faculty of Physical Education and Sports Sciences at the Hashemite University.

Hypothesis of the study

There are statistically significant differences between the two groups in the post-measurement at the significance level ($\alpha \leq 0.05$) due to the effect of the suggested training program to develop the element of flexibility among male students of the Faculty of Physical Education and Sports Sciences at the Hashemite University in favor of the experimental group.

Limitations

- Human Determinant: Male physical fitness students were recruited to conduct this study.
- Spatial determinant: This study was conducted in the Faculty of Physical Education and Sports Sciences at the Hashemite University / Othman Bdair Sports Hall.
- Temporal limitation: This study was conducted between 20/10/2022 and 10/1/2023.

Methodology and design:

This study sought to determine the impact of a suggested training program to develop the aspect of flexibility of the male students of the Faculty of Physical Education and Sports Sciences at the Hashemite University.

Study Approach:

The experimental approach was used using the experimental and control groups due to its compatibility to the nature, objective and hypothesis of the study.

Study population:

All (299) male students enrolled in the Physical Fitness Course at the Hashemite University's Faculty of Physical Education and Sports Sciences made up the study population.

The sample:

The study sample was made up of (60) students who were purposefully selected from the study population and divided into two groups with a total of (30) students in each group. The study sample participants were split into two groups as follows:

- The control group: the group that remained trained in the traditional way of developing physical fitness.
- The experimental group: the group to which the proposed training program was applied.

Equivalence of groups:

The T-Test for Independent Samples was used in the pre-measurements to determine whether the two study groups (experimental and control) were equivalent on the factor of flexibility. The following table illustrates this.

Table (1): Results of the Independent Sample T-Test to reveal the element of flexibility between the two groups (control and experimental) in the pre-measurements

(n = 60)

Variable	Group	Mean	SD	T- value	df	Sig.
Hip joint flexibility	Control	32.16	6.69	0.112	58	0.911
	Experimental	31.96	7.17			

According to Table (1), which displays descriptive statistics for hip joint flexibility, the mean for the control group was (32.16) and the mean for the experimental sample was (31.96). The table also demonstrates that there are no statistically significant differences between the two groups (the control and the experimental) in the hip joint flexibility component, where the value of (T) did not achieve the level of statistical significance, indicating that the two groups were equal in the pre-measurement of the flexibility component variable in the study.

Scientific Processing for Study Tests:

The researchers verified the scientific parameters of the study tests according to the following:

validity of the tests

The proposed training program was presented by the researchers to a group of arbitrators with expertise and specialization in sports training at the faculties of physical education in Jordanian universities. Since the flexibility element's test is the flexibility box (sit and reach), this test is regarded as fixed, and its reliability and objectivity do not need to be calculated, the arbitrators were able to evaluate the proposed training program.

Statistics used in the study:

To achieve the objectives of the study and test its hypothesis, the following statistical methods were used:

Means and standard deviations for all study variables.

- Applying the Independent Sample T-Test to detect differences in the study variables between the two groups (experimental and control) in the pre-measurements.
- One-way multiple analysis of variance test (One Way ANCOVA) to detect differences between the experimental and control groups on all study variables.

Presentation and discussion of results:

This study intends to determine the impact of a suggested training program to improve the element of flexibility among the students of the Hashemite University's Faculty of Physical Education and Sports Sciences, and it will provide its findings in the following manner:

Study Hypothesis: There are statistically significant differences between the two groups in the post-measurement at the significance level ($\alpha \leq 0.05$) due to the effect of the suggested training program to develop the element of flexibility among male students of the Faculty of Physical Education and Sports Sciences at the Hashemite University in favor of the experimental group.

The appropriate statistical procedure was used to extract the mean and standard deviations of the flexibility component of the study sample of physical fitness students for the pre and post measurements as well as for the control and experimental groups in order to test this hypothesis and confirm its validity.

Table (2): Means and standard deviations for the element of flexibility among students of the Physical Fitness Course in the pre and post measurements, according to the group variable

Group	Control				Experimental			
	Pre		Post		Pre		post	
Variable	Mean		SD		Mean		SD	
Hip joint flexibility	32.16	6.69	32.50	5.02	31.96	7.17	42.93	5.21

From Table (2), it is evident that there are disparities between the two groups' pre and post measures for the flexibility component of the Physical Fitness Course students' means (experimental, control). The following is a presentation of these results as presented in Table (3) for the element of flexibility as a whole according to the two groups (experimental and control), after removing the influence of their pre-measurement:

Table 3: One-way analysis of covariance (ANCOVA) to reveal the effect of the proposed training program to develop the element of flexibility between the (experimental and control) groups in the post-measurement in the presence of the concomitant pre-measurement

Source of variance	Sum of squares	degrees of freedom	Mean sum of squares	f- value	Sig.	eta squared η^2
Pre-measurement	928.03	1	928.03	89.15	0.000	0.610
Group	1668.75	1	1668.75	160.31	0.000	0.738
Error	593.32	57	10.40	-	-	-

Total	3154.18	59	-	-	-	-
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From Table No. (3), it appears that the training program had a statistically significant impact on the group variable's development of the speed component at the significance level ($\alpha \leq 0.05$), where the value of (F) was (160.31), the statistical significance was (0.00), and the effect size was (73.8%), which corresponds to the squared eta's value (0.435).

According to the study's hypothesis, the proposed training program to improve the element of flexibility had a statistically significant effect at the significance level ($\alpha \leq 0.05$) in the post-measurement and in favor of the experimental group that got the training program. The researcher attributed this outcome to the fact that the majority of training units in the training program included activities that assisted students in improving their overall joint flexibility, particularly their flexibility in the thigh joint. Therefore, when conducting other tests, there will be a clear improvement in most of these tests. As mentioned before, the element of flexibility is closely related to the rest of the elements of physical fitness. This indicates the diversity of the training program and did not only contain exercises that increase the level of muscle strength or cyclic respiratory endurance, but also there was a diversity in the program and it focused on all elements, especially the element of flexibility, and this may help the student to pass many tests in the Physical Fitness Course, in addition to passing the skills required of him in other courses such as the gymnastics course, which is very much based on the element of flexibility.

Conclusions:

- The flexibility of the study subjects was developed with the suggested training program, as the experimental group outperformed the control group.
- The training program showed progress for the study members from the experimental group as a result of the presence of differences between the means of the relevant study variable, and this indicates the potential improvement experienced by the students from the sample.

Recommendations:

- There is a need to keep pace with the training process, with an emphasis on developing all elements of physical fitness, which in turn guarantees raising the student's performance in various courses.
- adopting the suggested training program with the potential to add more training units to it as a way to raise student fitness levels, particularly in the course selected for this study.
- Performing comparable studies to this one and applying various factors, taking into account the rise in the number of individuals in the samples, and studying the difference in sex and different taxonomic groupings.

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