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## A comparative study of the effect of physical effort exercised in (Interleukin-10) for different sports

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### Abstract

The introduction to the research included that physical education had received a significant share of the fields of development that included the various joints of life, where sports achievements took a qualitative leap due to the totality of research and studies that aim to raise that achievement to the optimal performance, and it is known Cytokines are among the variables that are created from the system of the human body and they play a major role in a number of functions, including (interleukin-10) which is a cytokine with regulating and modulating properties of the immune response. It is important during physical efforts, and thus it is considered one of the important variables that attract researchers' attention to know its functions accurately in different physical activities so that the technical personnel of the training programs can accord that chemical vision, while the research problem is shortened. Scientists and researchers have always delved into everything that is new to serve the optimal achievement in the field of various sports in general and in the framework of the effectiveness of (ground tennis and table tennis) in particular, given the lack of available information or its lack of modernity, which ultimately serves to raise the level of these events? The researchers sought to delve into this phenomenon and crystallize its problem by answering the following questions: What is the level of changes that can occur in the internal environment of the body among the members of the research sample in the immunological aspects that pertain to (interleukin 10.) due to the effect of the exerted physical effort, while the study aimed to compare between the members of the research sample according to the effort exerted in the levels of secretion (interleukin 10) among the members of the research sample. In light of the study's objective, the researchers hypothesized that there is a varying correlation between the level of (interleukin 10) among the research sample members and the type of physical exertion.

**Keywords:** Comparison, physical z, (Interleukin-10), sport

### 1. Introduction

#### 1.1 Introduction and importance of research

Physical and sports education is an art and a science, with its origins, principles and objectives, through which it enhances the process of education and the acquisition of motor skills. Regular exercise is one of the best ways to maintain health by making adaptations in functional devices and improving their performance. It is also considered one of the best solutions to get rid of health problems and ward off the risks involved. And in connection with all the foregoing, the human being has persisted in developing the means to advance in the field of physical education through research, verification and delving into everything new in order that he might have a greater opportunity to achieve the goals of physical education. Including achieving its arousal on the entire human body in order to improve the functions of the organs, which will inevitably be reflected in its athletic success? Recently, scientists have been focusing on studying biochemistry, which is one of the most important joints that can affect the vital activity of humans in general and sports in particular. Studies have limited the role of that device in warding off danger and confronting the bodies that may cause disease ailments. The role of that device in balancing the internal environment of the body, especially during and after practicing various physical activities, was neglected. The interest of scientists and researchers in the sports field has increased since a short time in the science of immunology, as it deals with the various means by which the athlete's body can protect itself against various diseases during training or competitions that it is engaged in. Studies in this branch have included immune cells in the blood serum and what it contains of Immune bodies, and the topic of immunity is closely related to the field of training and preparation. And at the moment Nations are facing a health crisis represented by the corona virus, which has led to the disruption of the causes of life and the number of deaths it has left, as well as

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psychological and economic problems, Social and lifestyle change and maintaining the sustainability of physical activity by using several means, including training through direct and indirect communication from a distance through the available electronic platforms and according to the instructions and instructions issued by the official authorities. Cytokines are among the variables that are created from the system of the human body, and they play a major role in the balance of glucose, including (interleukin - 10) and a cytokine with regulating and modulating properties of the immune response. Thus, it is considered one of the important variables that attract researchers' attention to know its precise functions in the various physical activities so that the technicians of the training programs can be trained according to that chemical vision, Hence the importance of our research in shedding light on the aspects of biochemistry that play a distinctive role in energy production, represented by interleukin 10.

**1.2 Research problem**

Came problem this is the study from during rarity the obvious for research Scientific which is related to the effect of physical effort exercised in (Interieukin-10), so the researchers decided to delve into this phenomenon and crystallize its problem by answering the following question. What is the level of changes that can occur in the internal environment of the body among the members of the research sample in (Interieukin-10) due to the effect of the practice exercises and adaptation to them for the activities under study under the influence of anaerobic physical effort?

**1.3 Research Objectives**

- Identifying the concentration of interleukin 10 among individuals in the research sample.
- To identify the effect of the physical exertion under study on the concentration of interleukin 10 among the members of the research sample

**1.4 Imposing search**

There are significant statistically significant differences for the two research groups in the tests used in the research before and after the effort.

**2. Research methodology and field procedures**

**2.1 Research Methodology**

The scientific research methods are “which determine the scientific method followed by the researcher, as it is the primary tool for all information, imposing hypotheses, and setting goals to solve a specific problem and reach it ” (Deewold, 1985).

**2.2 Research Sample**

The sample selection process is closely related to the nature of the society from which the sample is taken because it is “that part of the society on which the tests are conducted and the society is correctly represented (Wajeeh, 1990) [7].

And tennis for the youth category for the season (20 21-20 22), numbering (10) players, as well as the process of homogeneity was conducted for the members of the research sample between the variables (height, weight, chronological age and training age), and it was found that there is a clear homogeneity in those variables, not the individuals of the research sample.

**2.3 Data collection methods**

**2.3.1 Means of data collection and tools used in the research**

- Arab and foreign scientific sources and references. Tests and measurements. Registration form for the results of tests and measurements. Auxiliary staff.

**2.3.2 Devices and tools used in the research**

- Restometer \_ - Runner T220 Treadmill Treadmill Catty – - Two (2) electronic stopwatches - A computer (Lab top) type (hp) of Chinese origin. - A centrifuge (Centrifuge) of Chinese origin. The LASI device. Medical injection. Sanitizing alcohol. Medical cotton. - Gel Tube. - Playing Tube.

**3. Determining the tests and measurements used in the research**

The researchers after reviewing the sources, references and literature in tests and measurements He took the anaerobic ability test for table tennis and tennis players, the lactic anaerobic ability test (Falah, 2008) [2] (Cunningham and Fulkins test.

**3.1 field research procedures**

The researcher, Wen, conducted tests for the study variable (interleukin 10) for the members of the research sample, which numbered (10) players, on Wednesday (7/27/202) in the Olympic Committee hall in Maysan, where blood samples were drawn from the members of the research sample before Performing physical effort Then the first group, represented by young table tennis players, performed anaerobic physical effort, and after 10 minutes of performing the effort, blood samples were taken from these players, while the other group represented by young tennis players performed The same effort, after which the medical specialist also performed the process of drawing blood samples in the same manner as the first group, then the blood samples were transferred to the laboratory of the Department of Life Sciences at the Faculty of Science, Maysan University, in order to extract the concentration of (Interleukin 10) in the blood of the research sample members.

Statistical treatments vR21 (SPSS 3-6): The researcher used the statistical package for statistical treatments

**4. Presentation, analysis and discussion of the results**

**4.1 Presentation of the results of interleukin 6 before and after the performance of the physical effort of the volleyball players**

**Table 1:** Shows the arithmetic means, standard deviations, the calculated (t) value, and the level of interleukin 10 before and after the individuals of the research sample

Variables	Measuring unit	before the effort		after the effort		Calculated T value	sig	Indication type
		s	p	s	p			
Tennis	Pg /Ml	239.05	4.197	313	12.463	11.246	0.000	moral
Table Tennis	Pg /Ml	222.95	10.260	308.325	9.184	12.40	0.000	moral

It is noted from Table (1) regarding the study of the differences before the physical effort of the tennis and table tennis players that the arithmetic mean of the tennis players Before the effort, it was (239.05) and the standard deviation was (4.197), and the arithmetic mean of the measurement after the effort was (313) and the standard deviation was (12.463), while the value of (T) was (11.246). Below the significance level (0, 002), which means that there are significant differences in the result in the effort dimension, while the arithmetic mean of table tennis players Before the effort, it was (222.95) and the standard deviation was (10.260), while the arithmetic mean of the measurement after the effort was (308.325) and the standard deviation was (9.184), while the value of (T) was (12.40). Below the significance level (0,002), which means that there are significant differences in the result in the effort dimension?

#### 4.2 Discuss the results of (Interieukin-6)

It is clear from the above tables related to the statistical treatments of the study variable Inter-Lukin 10 that significant differences have been achieved on the impact of studying the differences between before and after the effort for the two groups under study, as well as between the measurements of that variable for the two groups after the effort, Which may be exposed to imbalances in its compounds as a result of exercised physical effort, Whereas, Leukin 10 plays a role in rebalancing that environment as an indicator of the immune system. (Caetol, 1979) [4]. The researchers also see that the variance in the concentrations of this variable is due to the need for the functions that it performs due to the nature and intensity of physical exertion “ the formation of white blood cells during the lymphocyte stage.” represented by cytokines and interleukin 10, and this was linked to the nature and intensity of physical exertion ” (Kelley, 1993) [5] and with regard to environmental influences, (Shephard & Shek) stresses that extremes in heat and cold and other environmental factors affect the functions of the immune system in a negative way. (Shephard, 1 997) The researchers see the change in interleukin 10 concentrations as a natural result in harmony with the physical effort exercised by the research sample, and through what Presented from interpretations that summarized the variation in concentrations of (interleukin 10) and its role in re- balance The internal environment of the body, the researchers see the difference in the moral results between the two research groups, which indicated a level of significance (0.002) Among the members of a group of tennis players, whose energy system is represented by an anaerobic system based on the formation of training loads on violent exercises, in which work requires greater amounts of sugar during and after efforts, which requires an effective and large role (Interleukin 10) As all studies and research conducted in the field of the effect of exercise on the functions of the immune system have confirmed that the immune system is profoundly affected by exercise. However, significant and extensive clinical signs and temporary changes are a matter of controversy. (Joseph, 1995) Where the researchers believe that this indication came due to the increase in the concentrations of this variable due to the violent efforts imposed by the practice of effective tennis and the adaptation to it, and this adaptation emerged through the implementation of the anaerobic ability test. While the researchers see in the results of a group of table tennis players, which indicated in favor of the

dimensional tests after the effort below the level of significance (0.030), they were also logical, withdrawing and the nature of adaptations to the efforts practiced within the framework of this game, which requires the formation of the load in it at an average level, where no This effort requires a large depletion of energy quickly, which is reflected in the production of interleukin 10 and its role in this “ Violent efforts lead to the production of interleukin 10 more than any other physical exertion. ” (Felick, 1997) [3] It is recognized that high and low concentrations of (interleukin 10) are evident in some studies Including the study (Morthy & Zimmerman) that long-term exercises result in a significant increase in granular white blood cells (Granulocytosis) compared to the increase in short-term exercises (short duration). (Morthy, 1978)

## 5. Conclusions and recommendations

### 5.1 Conclusions

1. The results of the study were not recorded in the interleukin 10 variable, any critical measurement outside the normal limits.
2. The nature and intensity of the exerted effort and the adaptation to it affect interleukin 10 and its concentrations in the blood.
3. Ground tennis players were characterized by an increase in the production of interleukin 10 compared to table tennis players.

### 5.2 Recommendations

1. The researchers recommend the adoption of the results of the current study in the legalization of training programs in practice.
2. Conducting other studies on sports activities and other age groups in the interleukin 10 variable.
3. Adopting functional examinations as an objective indicator for the formation of training loads.

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