THE RELATIONSHIP OF PSYCHOLOGICAL TENSION WITH SOME CONCENTRATIONS OF ANTIOXIDANTS AMONG YOUNG HANDBALL PLAYERS

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ABSTRACT

The significant role of this research is exhibited by the fact that it facilitates in revealing degrees of emotional stimulation and study of its relationship with antioxidants that work to neutralize free radicals causing fatigue for young handball players. The research idea was born out to study of the relationship of tension to the appearance of free radicals and therefore the impact of antioxidants on their role to delay the commencement of fatigue, also, through the workers knowledge of sports psychology fitness, and monitored some of the local and international handball matches and their knowledge of recent scientific sources, they noticed that there is an obstacle hindering the athlete, so they decided to investigate this phenomenon through the following question: What is the relationship between stress and the concentration of some antioxidants for young handball players? The research aims to identify the level of tension and the level of some antioxidants among young handball players, and to study the relationship between the level of tension and the concentrations of some antioxidants among young handball players, and researchers suggest that there is no correlation between tension and the concentrations of some antioxidants among young handball players. The descriptive method (the survey and correlation method) was used on the group of the participants (108 handball players) of the Middle and South Forat clubs, in the Youth League for the sports season 2018-2019 were belonged to nine clubs are (South Oil, Amara, Samawah, Kut and Alan Surya, Al-Rafidain, Al-Najaf, Al-Hilla and Imam Al-Mutaqin. The investigated was selected by the players of Al-Najaf Sports Clubs in Al-Najaf Governorate and Al-Rafidain Sports Club in Al-Diwaniya Governorate. They are (20) players (10) for Al-Najaf Sports Club and (10) for Al-Rafidain Sports Club in a random way. The research determined a high level of some antioxidants, which are (selenium, vitamin C and vitamin E) in comparison with their normal level throughout exposure to emotional stimulation, and the presence of a significant correlation between stress and antioxidants (Se, C, E). The researchers recommended to adopt the research results by handball coaches to investigate the psychological and physiological effects of handball players. Also, the results suggested to have the food rich with concentrations of antioxidants (Se, C, E) as the latter established as a defense system elements within the body in order to protect the cell membranes from free radicals as well as their protective effect in preserving cell membranes and tissues from injuries and...
INTRODUCTION

Several variables affect the performance of the handball, including the psychological variables especially during competitions. Consequently, the development process has become a concern for coaches, players and specialists in the handball game, through the identification of issues and its causes, and thus its treatment to develop the required situation. One such effective treatment is to interact with other sciences, for example, sports psychology. Sports psychology is one of the important sports sciences that have a direct impact on accomplishing excellence achievement. Furthermore, Sports psychology contributes to improve the level of performance in various activities either individual sport or teams sport. Many of researchers who conducted their research in this field, in order to develop appropriate clarifications for many of the questions that arise in this game, in attempt to identify the most important obstacles to achieve the high athletic achievement of our teams and overcome these difficulties and identify the appropriate solutions.

It is well established that the mineral and vitamins are closely related to the fatigue, as antioxidants are nutrients found in the blood that work to neutralize the unstable reactive molecules and transfer them to harmless molecules.

The importance of this research demonstrated of its revealing the degrees of emotional stimulation and examining its relationship with antioxidants that work to eliminate the free radicals causing fatigue for young handball players.

The research problem born out in an attempt to raise the level of physical fitness elements and delay fatigue appearance on players to perform the required duty in the best way. Tension is an significant variable in the field of physiological psychology that affects in one way or another on the performance of the body's functional systems, and works on the body losing energy before performing the physical duty, and since the antioxidants that work to repair the cells of the body from the risk of free radicals and reduce their chain reaction, which is the obstacle to obtaining energy. In addition to the negative effects mentioned above of the free radicals, they also cause ruptures and damage of the connective tissues, as well as disorders of cell function resulting from a deficiency of antioxidants. The oxidation properties resulting from a lack of antioxidants, causing muscle fatigue, which leads to stopping the performance. With this in mind, the researchers worked to study the relationship of tension to the emergence of free radicals and consequently the effect of antioxidants on their role to delay the commencement of fatigue. The researchers established that there is a problem delaying based on their revelation to local and Arab handball matches and their knowledge of sports psychology and mathematical physiology and material physical fitness, in addition to being familiar with the mineral and vitamins as a source of energy for the body.
with modern scientific sources, so they decided to study this phenomenon through the following question: What is the relationship between stress and the concentration of some antioxidants for young handball players? [8-10]

The research aims to identify the level of stress and the level of some antioxidants among young handball players, and to examine the relationship between the level of tension and the concentrations of some antioxidants among young handball players, and researchers proposed that there is no correlation between tension and the concentrations of some antioxidants among young handball players.

**MATERIAL AND METHODS**

**Field research procedures**

The researchers used the descriptive method in the survey and correlation method as it appropriate to the nature of the research problem. The participating players from middle and south Forat clubs for the season (2018-2019). 108 players belonging to nine clubs, which are (South Oil, Amara, Samawah, Kut, Nasiriyah, Rafidain, Najaf, Hilla and Imam Al-Mutaqin).

The participates were chosen by Najaf Sports Clubs in Najaf and Al-Rafidain Sports Club in Al-Diwaniyah Governorate, who are (20) players (10) for a club Najaf sports and (10) for Al-Rafidain Sports Club in a random way.

**Measurements used in the research**

The level of measurements of the changes have been identified by using some devices and tools before the athletic competition.

**Biochemical tests and measurements**

**Antioxidants**

**The measurement of selenium (Se)**

The blood was drawn from the participants before the athletic competition, by sitting on a bench to draw the blood by (6cm²) and placed the blood on the special test tubes for each participant.

**Measuring Vitamin C**

Vitamin (C) was measured by drawing blood from the players before the athletic competition, and then the serum is separated and added directly to (1ml) of metaphosphoric acid (3% w/v) and then stored in the refrigerator for a week to be ready for use. There are a number of methods that depend on the reductive ability of the two groups “1,2Hydroxy Ascorbic acid” in ascorbic acid in estimating vitamin (C). These methods are characterized by relatively slight accuracy because most of them are traumatic. Another method that depends on the formation of hydrazine is characterized by high accuracy due to its use of the Spectrophotometer, which was used in this study. However, this method requires special and expensive kits which imported from European countries whose arrival requires a long period of time and at a high cost.

**Measuring Vitamin E**
Vitamin (E) was measured from the blood sample from participants before athletic competition. The blood samples were sent to the laboratory, in the same way that vitamin (C) was analyzed.

**Measuring of stress**

The researchers used the psychological tension scale prepared by (Bayati, 2004) as a tool to collect data.

**Scientific coefficients of the scale**

**Verify the scale:**

The researchers used the (experts') genuineness, despite the fact that the current scale has a high degree of accuracy and consistency through the scientific procedures. Honesty means "the extent to which the test represents the content to be measured". The scale items were presented in a preliminary form to a number of experts in the field of psychological sciences, measurement and evaluation, and sports psychology, as they were asked to express their opinion on the validity of the scale items for evaluation to be appropriate for the purpose for which they were developed.

Appropriate adjustments were made by some adjustments, for example, (deleting, reformulating, or adding some elements or a number of paragraphs) in order to match research participants. Moreover, the validity of the alternatives answer was mentioned by adding and determining the latter as its appropriate to the scale as (Oweis) indicates that “We can consider and employ the test after it has been presented to a number of experts in the field that the test measures are preserved, and if the experts establish that this test measures the element that was set to examine it, the researcher can rely on the decision of experts.”

Appendix No. 1 shows. After analyzing the responses and observations of the experts, the experts’ sincerity was extracted through the percentage of experts agreement about the validity of its paragraphs, (75%) or more of their opinions were accepted, since "the researcher must obtain a percentage of agreement of experts in the validity of the paragraphs, and the possibility of making adjustments at a rate of not less than 75%. Thus, the measure of psychological tension, in its final form, is (31) items.

**Exploratory experiment**

After setting the instructions for the scale, the researchers conducted a pilot study to find out the following:

1. To ensure clarity of instructions and paragraphs of scale.
2. Knowing the required time to answer the scale.
3. Knowing the conditions of application of the scale and the accompanying difficulties.
4. Ensure that the scale is clear for the participants.
5. Researchers will have practical training to determine for themselves the negatives and positives that are encountered during the conduct of the main test.
6. Extraction of the scientific basis for the scale.
Thus, the scale became ready for application, consisting of (31) items.

**Statistical means**

The researchers used the software of the Statistical Package for Social Sciences (SPSS).

**RESULTS AND DISCUSSION**

This section included the results after statistical analysis.

**View, analyze, and discuss test results for individuals in the research sample.**

Table (1) showed that the mean for measuring stress was (89.95) degrees, the standard deviation was (5.25), the mean for selenium was (154.32) and the standard deviation (11.84), while the calculated correlation coefficient value was (0.68). The latter value was greater than its tabulated value of () at the level of significance (0.05) and degree of freedom (18), and this indicates a significant correlation between the two tests.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Unit of measure</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Calculated correlation coefficient value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stress</td>
<td>Degree</td>
<td>89.95</td>
<td>5.25</td>
<td>0.68</td>
<td>Significant</td>
</tr>
<tr>
<td>Selenium</td>
<td>ng/ml</td>
<td>154.32</td>
<td>11.84</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is clear from Table (2) that the mean for measuring stress was (89.95) degrees, the standard deviation was (5.25), and the mean for vitamin C was (4.23) and the standard deviation (0.36), while the calculated correlation coefficient value reached (0.53) which is a value greater than its tabulated value of () at the level of significance (0.05) and degree of freedom (18), and this indicates a significant correlation between the two tests.

<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>Stress</td>
<td>درجة</td>
<td>89.95</td>
<td>5.25</td>
<td>0.53</td>
<td>Significant</td>
</tr>
<tr>
<td>Vitamin C</td>
<td>mg/L</td>
<td>4.23</td>
<td>0.36</td>
<td></td>
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</tbody>
</table>
It can be noticed from Table (3) that the mean for measuring stress was (89.95) degrees, the standard deviation was (5.25), the mean for vitamin E was (4.92) and the standard deviation (0.21), while the calculated correlation coefficient value was (0.61), which is a value greater than its tabulated value of () at the level of significance (0.05) and degree of freedom (18), and this indicates a significant correlation between the two tests.

**Table 3:** The mean, standard deviation, calculated correlation coefficient value, mean statistical significance of vitamin E and stress,

<table>
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<tr>
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</tr>
<tr>
<td>vitamin E</td>
<td>mg/L</td>
<td>4.92</td>
<td>0.21</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DISCUSSION**

The findings of this research as it is noticeably oblivious from tables (1, 2 and 3) that there is a significant correlation between some antioxidants and stress which caused psychological pressure and stress. Therefore, leading to appearance of anxiety of players and increasing the heart rate to 180 beats per minute. The possible explanation for this phenomenon, might be the formation of free radicals after the oxygen feeding process that occurs inside the cells as a result of transferring oxygen to the functioning muscles to produce the necessary energy and provide the need of the body with energy. Thus, these radicals become molecules with no electrons, or they contain single electron making it unstable to a massive degree and capable of reconnect with any compound that passes its way to become unknown and harmful compounds, hence resulting in rupture and damage of cells.

Antioxidants have a huge importance to protect tissues from the cellular oxidation that is caused by free radicals on the membranes of cells and other compounds, by the fact that the element selenium binds with the sulfur group (SH - sulfur). Sulfur group limited within the reduced glutathione to transform it into oxidized cloakathion after eliminating the activity of the radicals. Free radicals are harmful to body cells. Ascorbic acid, which protects cell membranes from the effects caused by free radicals, due to the nature of the acid that act as an antioxidant against these radicals. The higher the degree of stress, the more antioxidants in the study (3).

The researchers agree with what previously mentioned in that (increasing free radicals lead to the transformation of these molecules from a reduced form to oxidizing form to use as protective side to limit the destructive effect of these free radicals) (1,3).

The researchers also noticed that the increase in antioxidant concentrations between the participants immediately after exposure to emotional stimulation gives us the impression that the effective role of the
antioxidant function in preventing and controlling free radicals impact. Oxidation is the maintenance of the internal balance of the body, which guarantees cells to continue to produce energy and not to destroy and disrupt it by free radicals, which often accompanied with a high heart rate. Peake confirmed that the increase of the heart rate due to stress causes a clear increase in the oxidative action. As a result, there is a clear increase in antioxidant concentrations to treat the oxidative action and maintain the internal environment of the body. This indicates that these variables were affected by stress resulting from competition pressure and this is due to the player's awareness of the pre-competition position, anxiety and tension. These conditions are characterized by psychological pressures and cause an increase in physiological activation of the player, and as a result of this is the presence of physiological symptoms.

CONCLUSION
1- The high level of some antioxidants, which are (Selenium, Vitamin C and Vitamin E) from their normal level during exposure to emotional stimulation.
2- There is a significant correlation between tension and antioxidants

RECOMMENDATIONS
1- Adopting the research results and making use of them by handball coaches to know the psychological and physiological effects of handball players.
2- Foods containing concentrations of antioxidants (Se, C, E) should be eaten as they constitute a defense system inside the body in order to preserve cell membranes from free radicals as well as their preventive importance in preserving cell membranes and tissues from injuries and diseases that appear on Athletes during continuous training periods.
3- Carrying out similar research and studies by researchers to codify and define standardized levels of stress scale for individual and group games.
4- Adopting a method of mental training as a method to reduce the degree of tension before the start of the competition.
5- Paying attention to the general psychological preparation of players during the training process along with physical, skill, and planning numbers.

ETHICAL CLEARANCE
The Research Ethical Committee at scientific research by ethical approval of both environmental and health and higher education and scientific research ministries in Iraq

CONFLICT OF INTEREST
The authors declare that they have no conflict of interest.
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