

The effect of consuming a natural food compound as an energy source on some biological and physical variables and the digital achievement level of the middle distance runners

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The study aimed to identify the effect of consuming the proposed natural nutritional compound (honey + royal jelly + Panax ginseng) in certain proportions as a source of energy on some biological variables represented in (pulse rate, lactic acid concentration in the blood), and the physical (carrying speed) Muscle endurance, respiratory cycle endurance), and the digital level (1500 running time) of the sample in question, The researcher used the experimental method for its relevance to the nature of conducting this study using one experimental group, as this classification depends on measuring biological, physical, and digital variables after consuming the sample under research the proposed natural food compound in standardized proportions estimated at (50 gm. honey + 40 mg royal jelly) + 500 mg of pancakes ginseng), the second measure without the suggested natural compound intake, The research sample was deliberately chosen from the students of the Assiut University team in the middle distance race for the academic year 2019 AD / 2020 AD, where the total sample reached (6) student players whose ages ranged between (18-19) years, and the most important results were that eating the proposed natural food compound from (Bee honey + royal jelly + ginseng plant) in metered ratios by mouth has a positive effect on reducing the concentration of lactic acid accumulated in the blood and working muscles as a result of high-intensity physical exertion of the sample under study, lower pulse rate, increased muscular endurance and higher level of performance Hence, an improvement in the digital level of the 1500-meter athlete is under investigation.

Introduction and the research problem

The phenomenon of muscle fatigue in the natural phenomena of positive effects, and while witnessing the exerted physical exertion as a result of the difference in its intensity according to the difference in the degree of intensity of muscle work. (2 : 21), and the phenomenon of muscle fatigue a lot in the performance of it: the players of the fast track races the rider 1500 meters running, because of this race of long distance and high physical

intensity in performance, where the competitor seeks to travel this distance (1500 meters) in the shortest time Possible (3: 156), (7: 112)

As a result of the contestant's desire to win the race by trying to delay the onset of muscle fatigue, and raise his functional and physical competence, the coaches and players have tended to pay attention to the science of pharmacology, which falls under the name of doping, which are foreign

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substances from the body, including prohibited use by the World Anti-Doping Organization. -Doping Agency (WADA), taken in unnatural quantities before the competition a certain period of time, and in unusual ways, and it contributes to raising the physical fitness in an unnatural way to try to win the race in an illegal and non-educational way. (29)

It is certainly considered a kind of fraud and deception and is inconsistent with the values and morals of honest sports competition, as it harms the health of athletes and has negative and dangerous effects that reach the point of death.

Hence the idea of researching the use of a natural food compound suggested by (honey + royal jelly + punk ginseng) in certain proportions as a source of energy, and one of the alternatives to internationally prohibited stimulants, especially when the physical, functional and skill levels of the players are equal, the role of natural stimulants comes as a source of energy, And one of the scientific attempts to raise functional efficiency, increase physical effort, and then improve the level of digital achievement for the middle distance contestants.

the importance and need for research

The results of this study may show the effectiveness of using the proposed natural nutritional compound (honey + royal jelly + punk ginseng) in certain proportions as a source of energy, and one of the scientific attempts to raise functional efficiency and increase physical effort and then improve the

level of digital achievement for middle distance contestants,

research goal:

The research aims to identify the effect of consuming a natural food compound as an energy source on some biological and physical variables and the level of digital achievement for middle distance contestants through:

1- Comparison of the biological variables under investigation represented in (pulse rate, blood lactic acid concentration) when consuming the proposed natural food compound, and without consuming it.

2- Comparison of the physical variables and the numerical level under investigation represented in (speed endurance, muscle endurance, respiratory cycle endurance, 1500-meter running time) when consuming the proposed natural food compound, and without eating it.

1/3 research hypothesis

1- There are statistically significant differences in the biological variables under investigation when consuming the proposed natural food compound, without taking it in favor of the proposed natural food compound.

2- There are statistically significant differences in the physical variables and the numerical level under consideration when consuming the proposed natural food compound, without taking it in favor of consuming the proposed natural food compound.

2/0 previous studies

1- Felig PA study (2000 AD), (19), the study aimed to identify the effect of consuming glucose solution before physical exertion on increasing the ability to continue performing

muscular work. The research, and the study was conducted on a sample consisting of (6) athletes whose ages ranged from (19-21) years, and used the ergometer, and the most important results were that taking glucose solution before performing muscular work on the ergometer with a severity of 60: 65% of the maximum oxygen consumption leads To increase the ability to continue performing muscular work, as the average performance time increased in the case of consuming a glucose solution than if it was not taken.

2- The study of Coyle EE (2002), (17), the study aimed to identify the effect of carbohydrate intake on the performance of muscular work that lasts for a long time and delay the onset of fatigue. The study was conducted on a sample consisting of (10) athletes whose ages ranged between (24-36) years, and among the most important results was that the level of glucose concentration in the blood at the end of the performance of muscular work was by between 20-40% in the case of eating carbohydrates than in the If it is not taken, in addition to increasing the continued performance of muscular work on the Ergometer.

3- The study of Muhammad Hamid Ali Shams al-Din (2008 AD), (11), the study aimed to identify the effect of consuming a food compound of honey and pollen on raising the level of physical competence of adult wrestlers, and the researcher used the experimental approach with the experimental design with one group by the method of pre-measurement The

study was carried out on a sample consisting of (14) wrestlers chosen by the deliberate method, their ages ranged between (22-25) years, and the most important results were that eating the food compound led to an increase in the physical competence of the wrestlers in the physical and skill tests, and measurements. Physiological, and taking the compound won five gold, two silver and one bronze medals in the 2007 African Championships.

4- The study of Muhammad Ali Ahmad Al-Tanaihi (2014 AD), (13), the study aimed to identify the effect of consuming a glucose sugar solution at a concentration of 20% and 30% immediately before performing the physical exertion, and half an hour before the performance of physical exertion on physical efficiency and recovery of hospitalization, and the researcher used The experimental approach with one-group experimental design by the method of pre and post measurement due to its relevance to the nature of the research, and the study was conducted on a sample of (32) players chosen by the deliberate method, their ages ranged between (15-18) years, and the most important results were that taking a glucose sugar solution for him Effective positive effect on physical efficiency and recovery.

search plan and procedures

1- Research Methodology: The researcher used the experimental approach using one experimental group, as this classification depends on measuring biological variables (pulse rate, and the percentage of lactic acid concentration in the blood), physical

(respiratory cycle endurance, speed bearing, strength endurance), and digital level (Race time 1500 meters running) after the sample under investigation consumed the natural food compound (honey + royal jelly + punk ginseng) in standardized proportions estimated (50 gm. honey + 40 mg royal jelly + 500 mg of punk ginseng), and the second measure without Take the suggested natural nutrient compound.

2- Research community: The research community represented the students of the Assiut University team in the middle distance race in the academic year 2019 / 2020, and their number was (6) student players.

3- The research sample: The research sample was deliberately chosen from

the students of the Assiut University team in the middle distance race for the academic year 2019/2020, where the total sample reached (6) student players whose ages ranged between (18-19) years, and the researcher required the sample The research is underway to reside in the university city for students at Assiut University throughout the period of applying the basic experience. It also required homogeneity of the sample in all variables (biological, physical, and numerical level) under consideration. Before conducting the basic experiment in order to prove the moderation of the research sample in those variables.

Scientific tests and measures under investigation:

Table (1)

The physical tests and biological measures under consideration

N	The name of the test or standard	measuring unit	The aim of the test or scale
1	Pulse rate right after 1500m	Pulse / s	The efficiency of the circulatory system
2	Lactic acid concentration in blood	M-Mmol	Measuring the percentage of lactic acid concentration in the blood
3	Test 400 meters sprint	a second	Speed bearing gauge
4	Leaning prone test	Degree	Force tolerance measurement
5	Running test in place	Number / 2 BC	Measurement of respiratory periodic stress
6	1500-meter running test	another minute	Measure the level of digital achievement

Tools and devices used in the research

- Receptacle device, medical scale, Accu-Trend device, sticky inserts medical cotton and plaster, stopwatches, cones to determine the signs.

Scientific codification of the tests and measures under consideration

1- the validity coefficient (peripheral comparison validity): To calculate the validity of the tests and measures of the sample under study, the researcher used the terminal comparison validity on the research sample of (6) players on 1-4/10/2019, then finding the

significance of the statistical differences. Between (the distinguished group numbering 3 players) and (the non-distinguished group

numbering 3 players), and it was found that there are statistically significant differences between the distinguished group and the undifferentiated group in favor of the distinguished group, which indicates the validity of these tests and measures and their ability to distinguish between the two different groups.

2- the reliability factor: In order for the researcher to verify the stability of the tests and measures of the sample under study, he used the test and re-applied the test, then carried out the first application on 7/10/9/2019, then re-applied the tests and measures for the second time on the same sample in On 21 and 23/10/2019, that is, with a difference of ten days between the two applications (the first and the second), then he calculated the correlation coefficient between the two applications, and it became clear that there were no statistically significant differences between the first application and the second application, which indicates the stability of those tests and measures used in Research and its ability to measure.

the homogeneity of the research sample: Measurements of homogeneity were carried out by finding the torsion coefficients of the individuals of the research sample

before the start of the application of the basic experiment to indicate the homogeneity of the sample members in the variables (biological, physical, digital level) under consideration that may affect its results. The bending of the anthropometric search variables for the basic sample may search between (+3, -3), which indicates the homogeneity of the research sample in those variables.

the exploratory experience: The researcher has put the final picture and the operational steps of the competitive plan in order to achieve the main objective of the research, as follows:

- Eat breakfast two and a half hours before the performance, according to the results of research related to failure to eat breakfast before physical exertion at a suitable time, leading to a decrease in blood sugar and impaired muscular work.
- Take the nutrient compound half an hour before physical exertion, in order to raise blood glucose levels.
- Finalizing on warm-up exercises and stretches with a time of (15) minutes, with the possibility of applying them in terms of performance, tools needed for implementation, and determining the time according to the set plan.
- Determine the appropriate time to conduct tests and measures of biological, physical and level variables on the sample under study.

display of search results

Table (2)
The significance of the statistical differences and the rate of improvement between the two measures (without taking the compound - by taking the food compound) in the biological - physical variables - the numerical level under investigation. N = 6

Variables	The coefficient	measuring unit	Without the compound		By taking the compound food		T value	Improvement percentage
			C	A	C	A		
Biological	Pulse immediately after exertion	Pulse / s	184.5	0.98	178.02	٠.٦٥	12.23	3.46%
	Lactic acid concentration in blood	M-Mmol	13.43	0.27	11.21	٠.١٩	14.80	16.53%
Physical	Respiratory periodic endurance	a second	62.13	0.84	68.56	٠.٩٥	11.28	9.38%
	Bearing strength	Degree	84.62	0.87	93.17	١.٠٧	13.79	9.18%
	Withstand speed	Number / 2 BC	53.64	0.34	51.26	٠.٢٩	11.9	4.44%
the level	A time of 1500 meters ran	another minute	5.12	0.09	4.49	٠.١١	9.84	12.30%

Tabular (t) value at the level of $0.05 = 2.02$

It is evident from Table (2) that there are statistically significant differences between the two measurements (without compound ingestion - by taking the food

compound) in the variables (biological, physical, and numerical) under consideration in favor of measurements of the proposed natural food compound intake.

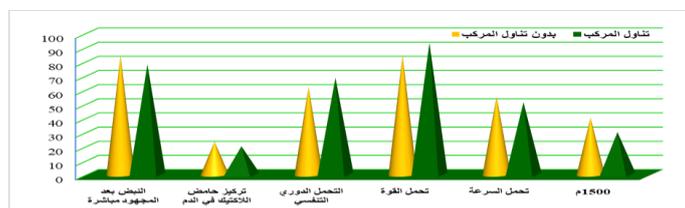


Figure (1) the differences of the averages between the two measurements (without taking the

compound - by taking the food compound) in the biological - physical variables - the digital level of the sample in question.

discussing the research results

The results of Table (2) showed that there were significant differences in the sample under investigation in the percentage of lactic acid concentration in the blood in favor of consuming the suggested natural food compound before physical exertion. As the subjects of the sample performed the same intensity of pregnancy in the two basic experiments (the first without the food compound, and the second by taking the nutrient compound), so the researcher attributed the low concentration of lactic acid in the blood and muscles of the sample under study to an increase in the speed of elimination due to the effect of the components of the food compound, where the food helped Royal in preserving the alkalinity of the blood by neutralizing the acidity resulting from an increase in lactic acid and carbonic acid in the blood tissues, especially after violent physical exertion. Serotonin also helped in ginseng, vitamins and yeasts. And enzymes in royal food and bee honey in the speed of metabolism to get rid of lactic acid in the blood and working muscles. (18: 155), (26: 748), as well as the importance of vitamins in the food complex, especially vitamin (B1), appears as recommended by the Food and Agriculture Authority And the World Health Authority, FAO / WLL (1996) that vitamins play a vital role in the speed of the metabolism process, which in turn helps to get rid of lactic acid, and accordingly, the proposed natural compound containing vitamins helped in reducing the concentration of lactic acid in the blood and muscles.

(1: 98), The results of Table (2) also showed a decrease in the pulse rate after the physical exertion of the sample in question in the case of eating the food compound in the case of not taking it, as the pulse rate depends to a large extent on both (the degree of absorption of the largest amount of oxygen - and the functional efficiency of oxygen consumption) The more the working muscles need more oxygen, the faster the breathing increases and the pulse rate increases (24:57). The improvement in the functional efficiency of oxygen consumption and the production of energy required for physical exertion results from the metabolism in an economical manner, and the efficiency and vitality of tissues in absorbing oxygen (23:57), and this means that when performing the same effort in terms of time and intensity, the decrease in oxygen consumption is due to the steady state of Individuals trained to adapt pulmonary ventilation to obtain needed oxygen in an economical manner (20: 161), (4: 129). Then, the middle-distance players of the sample in question were distinguished by a lower pulse if they consumed the food compound that included ginseng because it contained (germanium), which had a fundamental role in cell function, oxygen retention and high levels of fatigue without loss of oxygen. (16: 3), As previous scientific experiments (25), (28), (31) have proven that pollen stuck to royal jelly plays an important role in all vital processes such as oxidation, respiration and energy generation, and its presence maintains blood alkalinity, heart rate,

and muscle and nerve response to various indicators and stimuli.

And through the researcher's previous results, he has achieved the validity of the first hypothesis of the research, which states that there are statistically significant differences in the biological variables under investigation when consuming the proposed natural food compound, and without taking it in favor of consuming the proposed natural food compound.

Also, the results of Table (2) showed improvement in the physical variables and the numerical level of the 1500-meter athletes under investigation in the case of eating the nutrient compound in the case of not taking it. The researcher attributed this as a result of the proposed natural food compound containing royal jelly, which is rich in carbohydrates important for the athlete. As the results of scientific experiments carried out by Rahim Ruikh Habib (2006) and Radwan Saeed Muhammad (2015) showed that eating a carbohydrate-rich diet increases the ability to perform physical work with high intensity and a relatively long period of time, as the blood glucose level decreases to less than Normal level, The acidity (pH) of the blood increases as a result of the performance of high-intensity muscular work that lasts for a certain period, so the carbohydrates supply the body with glucose needed to preserve the alkalinity of the blood through the neutralization of acidity resulting from the increase in lactic and carbonic acid in the blood tissues, especially after violent physical exertion, and the production of energy needed to

continue performing Muscular work. (7: 4), (8: 89)

The results of the study by El-Banby and Hegazy (2002) also showed that the proposed food compound contains royal jelly that contains ATP, phosphocreatine PC, and Acetylcholine, It helped reduce the concentration of lactic acid in the blood and muscles, increase muscle endurance, and increase the level of performance, and thus improve the digital level of the 1500-meter runners in question. (18: 155),

And through the researcher's previous results, he has achieved the validity of the second hypothesis of the research, which states that there are statistically significant differences in the physical variables and the numerical level under consideration when consuming the proposed natural food compound, and without taking it in favor of consuming the proposed natural food compound.

Conclusions and recommendations

Conclusions:

In light of what the research results have shown and within the limits of the research sample used, and through discussion of the results, the researcher concluded that consuming the proposed natural food compound (honey + royal jelly + ginseng) in prescribed proportions orally has had a positive effect on reducing Pulse rate, reducing the concentration of lactic acid accumulated in the blood and working muscles as a result of high-intensity physical exertion, increasing muscular endurance and higher performance level, and then improving

the digital level of the 1500-meter athlete under study.

Recommendations:

Depending on the data and information that the researcher can reach and guided by the conclusions and within the limits of the research, the researcher recommends taking the proposed natural food compound (honey bee + royal jelly + punk ginseng) as a source of energy to raise functional efficiency and increase physical effort and from Then, improving the digital achievement level of the middle distance contestants.

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