

The Effect of Psychological Stress on The Body's Energy on Blood Sugar Levels

Shimaa Mohamed Abuzaid¹ , Lina Mohi Hadi²

1,2 College of Physical Education & Sports Sciences, AL-Mustaqbal University , Babylon , Hillah , 51001 , Iraq

Corresponding Author: E-mail:

ARTICLE INFO

Received: 03 Jan
Accepted: 22 June
Volume: 1
Issue: 2

ABSTRACT

Running leads to change the blood ingredients in different rates. These changes came within the physiological and biochemical conditions that occurred to face the physical exercises effete with the different training doses. Of these changes the sugar –blood ratio which came within the bodies response , and for the low concentration on the physiological and biochemical basis in setting the training programs for the athletes , and for the important role of this issue to get the highest achievements by the athletes as a result of developing their physical and physiological abilities , it became necessary to search and study the effete of running with different energy systems on the sugar ratio in the athletes blood according to scientific basis to get integrated physical characteristics and elevated scientific competence and to develop their physical systems . The experimental method had been used in this study – the equivalent group on a sample of nine runners who had been chosen deliberately and the researcher used the suitable statistical methods to deal with the results , and throughout these results the researcher get the following conclusions ;-1-There are significance differences between the before and after training testing for the second group of the (1500 m) runners , and the third group of the (5000m) runners , and the advantage is for the other training test relating their sugar – blood ratio .2- There are no significance differences for the first group of the (100m) runners relating their sugar –blood ratio.

Keywords: energy – sugar - blood ratio

Introduction

For access to the constants of reliable scientific studies and research must examine types of pregnancy physical user in terms and its relationship with distasteful regimes different energy as well as the expense of time and repetition in the exercises performed, and the resulting evolution of the adequacy of an acting career for different devices for the purpose of the face work requirements and muscle metabolism and in a form that suits the nature of physical effort in the various sporting events.

For this, the physical effort leading to changes in different blood components and variable rates and the intervention of these variables within the physiological adaptations and biochemical that get in the face of the impact of exercise training with different doses.

It is these variables that occur in the blood (sugar) Blood Sugar and which fall within the mechanical response of the body. This shall identify the physiological and chemical laws that occur on the basis of chemical and functional changes in order to help improve the body's response, control and work in the various sporting events.

Due to the lack of focus on the foundations of functional and biochemical when developing training programs for runs Games different types (short, medium and long) and because of their active and important role in achieving the desired achievement. Researcher felt that this aspect of scientific study as the basis for the development of modern achievement level runners and their access to good level.

1-2 the research problem: -

The ratio of sugar in the blood known as an important indicator of the level of physical development and functional addition to understanding the process of developing appropriate training programs for runs athletics.

And through it can know the impact of physical effort during the process of athletic training by observing the rise and fall of sugar at different distances runs which supports each of them to work according to different systems Based oxygenic energy and oxygen and by type of event. Given the lack of giving special importance to this vital aspect of most coaches, the researcher studying this issue and develop solutions and proposals for the development of the level of runners.

And put the correct path in front of our trainers, based on rigorous scientific studies that benefit them in the success of their work.

1-3 Research objectives: -

- 1 find out the impact of different energy systems runs sugar in the blood when the players in the effectiveness of (100 AD - 1500 AD --5 000 m).
- 2 knowledge of the differences in the proportion of blood sugar by runners systems, the energy used by each energy system which is subject to him.

1-4 hypotheses: -

- 1 - The physical effort exerted by runs distances short, medium and long has an effect on blood sugar and all of them by type of event.
- 2 - There are significant differences in the proportions of runners, according to the energy system used by them.

1-5 Fields of research: -

- 1.5.1 the human sphere: - a set of runs athletics.
- 1.5.2 temporal area: - for the period from 02/01/2011 till 06/01/2011.
- 1.5.3 spatial domain: - Tennis Sports Club Babylon - health centers, public and civil in the province of Babylon.

2 - Theoretical studies and similar: -

1-1 Theoretical studies: -

That the results of sports training is the emergence of changes in the levels of training are somewhat integrated the physical characteristics and physiological and mechanical biological and psychological qualities, so it is necessary to interest and since the beginning of training, the need to agree training with the age and sex, as well as attention to trainees and follow their behavior and their actions through their leadership, encouragement and interest in their (Dr. Mahmud Alrabiei and others - 2000 - p 171).

This is in addition to the knowledge of the physical and functional adaptations regularly and gradually to reach athletes to a level that qualifies them to participate in competitions Since the muscle work that there is no oxygen (anaerobic) in runs (100-200 AD) requires the sports to make the maximum capacity for a short period of time depending on the energy system anaerobic (116 - 1985. Tharp) for this must note the nature of performance in runs short and that need to produce bursts of energy to perform acts of muscle strong and fast depending on the anaerobic capacity, which enables the player to perform his functions and duties according to the nature of the event with a quick bear fatigue caused by lack of oxygen during the performance.

The players runs medium, the effort undertaken by the need to perform their muscles strong and muscular fast and it takes two minutes to four minutes, but this depends on dividing the largest energy production and the other part .

While we find that the antenna in the power system running (5000 m) long to the ability of air needed to continue in the performance of muscular work, and for this we find the player assumes the continuity of work for as long as possible and a high level with its ability to increase energy production at higher levels. This work highlights the largest capacity on the system requirements for the antenna to supply the muscle and muscle groups, working with oxygen to produce energy needed for the performance of the length of the race (Ahmad Mahmoud SERVER - 1999 - p 19).

This controls the aerobic capacity in sports that is determined by the level primarily through the level

of endurance athlete while controlling the ability anaerobic level sports which are characterized by using high intensity through high-speed performance, or through the high resistance (Abu Ala Abdel-Fattah - 1997 - p 164).

The glucose concentration in the blood of the utmost importance to work the body's natural rights and of the normal rate is between (80-120) mg / 100 ml blood (Salman Ahmad Salman - 1984 - p 466). For this must be to maintain this ratio as much as possible because the low blood sugar lead to injury to (Hypoglycemia) In this case a person get shocked (Shock) accompanied by muscles and a feeling of weakness and debility and whites of the skin and thus lead to loss of consciousness, coma and even death in some cases (Mohammad Nizar Ibrahim - 1984 - p 46).

Influenced by the organization and the continued absorption of glucose during the involuntary aspects muscle endurance and speed training by several factors help to increase the capacity of muscles to contract and continue to exert physical effort the length of the training period and during the competitions, namely, (Bahaa El Din Salama - 1999 - p 31).

1 - objective factors Local Factors: -

The force is transferred across the cell membrane glucose obsolete chemicals increases during training. When the level of intensity (30%) than from the decomposition of Adenosine triphosphate to glucose up to 3.2 mmol / min while training at a level of intensity (60%) leads to an increase in the absorption of glucose up to 3.5 mmol / min.

1 - Hormonal regulation Hormonal Regulation: -

All endocrine hormones increase the secretion of glucose, other than the hormone insulin, which plays an important role in the organization of muscle glucose uptake. Has proved that physical exertion and insulin regulate blood transfusions, and insulin deficiency impairs glucose uptake rate (5%) also occurs for patients with diabetes.

2 - Article provides Substrate Availability: -

The endurance of the players Carbohydrate endurance and speed training before B (48) hours leads to increased muscle uptake of glucose, and the decline in muscle glycogen is accompanied by an increase in the extraction of blood glucose during training.

Is low (ATP) adenosine tri phosphate in the muscle tissue of glucose or glucose and Adenosine triphosphate needs which the body converts to immediate Adenosine triphosphate in relaxed muscle and liver (Hollmann-1988 p. 5).

For this, we find that the re-building (ATP) as soon as possible in the short runs depends on a chemical compound called another creatine phosphate (PC) muscle and the inventory in order to unite with fission (ADP), a chemical compound remaining after fission (ATP). And are re-building (ATP) again very quickly without the need for oxygen (Bahaa El Din Salama - 1999 - p 30).

As in the oxygen can be re-building (ATP 36) from one part of the glucose (decomposition full) (114 - 1996 Meardle) and (ATP 130) from a partial one for the acid fat (Fox. ELETal 1988 - 128). The process of upgrading the capacity anaerobic and aerobic endurance require upgrading where the heart and the lungs improved through improved aerobic capacity, and can improve the operations of the metabolism and transformation of food into energy in the muscles through improved anaerobic capacity.

3 - Research Methodology and presiders: -

3-1 Research Methodology: -

Been using experimental method - aggregates a level playing field for suitability for this search.

3-2 Find the sample: -

Sample consisted of (9) athletes were selected in the manner they are intentional Champions the province of Babylon (100 AD - and 1500 m - 5000 m) and the 3 three in each event). In order to know the characteristics of the sample, the researcher studied variables and their own agenda as presented (1).

Table (1) (Circles represents the calculation and distribution deviations the sample depending on the type of effectiveness)

Action	Players number	Variables	Average	STDEV
100 meters	3	Age	24.54	2.43
		Weight	71.52	5.55
		Tall	171.57	4.6
1500 meters	3	Age	23.31	3.24
		Weight	68.71	3.41
		Tall	169.72	4.22
5000 meters	3	Age	21.37	3.24
		Weight	62.76	5.12
		Tall	174.66	5.21

3-3 Find services: -

- 1 - a water bath (Water bath) to save the laboratory blood samples.
- 2 - Needle to withdraw blood samples.
- 3 - to save the bottles of blood samples.
- 4 - Fund for the transfer of cooling blood samples to the laboratory.
- 5 -thermometer to measure temperature.

3-4 research tools: -

- Arab and foreign sources.
- Personal interviews.
- Exploratory experiment.
- Observation and experimentation.

3-5 exploratory experiment: -

For the purpose of controlling variables for the main experiment, the researcher conducted an exploratory test on 15/02/2004 was their purpose.

- 1 - make sure the possibility of staff assistant in the application of duties.
- 2 - Identify the time of experience to draw from the main experiment.
- 3 - Understand the key requirements of the test and materials used.

3-6 action research field: -

3.6.1 Measurements and tests: -

- 1 - Anthropometric measurements (length - weight - age).
- 2 - measurement of biochemical variables (blood sugar).

3-6 -2 method of making the test at: -

Assistant team has to withdraw blood samples from the sample in order to conduct analysis and knowledge of the biochemical variables (blood sugar) and the operation took place after a player standing on a hunger of not less than six hours and the temperature of the laboratory (37 degrees).

3-7 main experiment: -

The team assistant to withdraw blood samples from a comfortable state before the six minutes and all the sample on the day the experiment's main (2/22/2004) at five in the afternoon and after the completion of the players race with each other directly to each effectiveness was withdrawn blood again of them also for each group . And then transported the blood samples drawn from the portfolio to a private

laboratory in order to determine the proportion of blood sugar and all of them immediately after the race.

3-8 Statistical methods: -

- Average.
- STDEV.
- ANOVA.
- T-test.

The results of the third group (5000 m) and also received a table (2) amounted to (80.43) for the tribal and the deviation (0.943), while we find reached (92.76) and standard deviation (1.009) and the value of T calculated (12.63 (which is greater than the tabular amount (4.352) and the rate of error (0.05) and the degree of freedom (2) which shows that significant difference in favor of the post as well. In order to know the differences between the groups resorted researcher tests a posteriori analysis of variance to test and also in the table (3).

sources	Sqr. Sum	Freedom degree	Sqr. average	Calcu.F value	Tab. F value	Sig
Between Group	42.74	2	21.37	3.08	5.14	non sig
In group	41.57	6	6.93			
Groups	83.21	8	27.20			

Table (3).Shows the results of analysis of variance of the three groups in the post-test for blood sugar .

In our observation of the table (3), we find that the value of (F (calculated amounted to (3.08) is smaller than the value indexed amount (5.14) and a margin of error (0.05) and the degree of freedom (6.2) This shows that the differences between the averages of groups was not significant. Does not appear that the significant difference between the tests before and after the first set ran (100) short distances the researcher attributes to the adoption of runners on the anaerobic energy system, which depends entirely on ATP.

As for the running 1500 m and 5000 m, the percentage of sugar blood rose, and by simple did not come out on the rates at their natural, but it appeared a significant and clear of the third group (5000 m) to the fact that this distance needs and therefore involve energy system antenna and which need to burn a high percentage of fat in addition to the sugar stock.

The researcher explains that this case a long-term effort to provide the player the addition of sugar in the blood and that of the involvement of fat as an energy source and oxygen analyzes in the field of energy, which reduces Dependence on blood sugar, while the second group (1500 m) showed an increase in blood sugar, but also in nature because of the use Alkleikojin for power generation.

But some studies, including a study (Singh R., Sirisinghe R. G. - 1999) has shown that the percentage of sugar in the plasma did not change until after he ran away (18 kilometers) may explain this result of adaptation reactions physiological to run long distances as a result for the continuation of their training for a long time.

4 - Presentation and discussion of results: -

When discussing the percentage of sugar in the blood of players totals of the three (running short, medium long) and as set out table (2) we find that the rate of fall within the ratios natural when healthy, which is limited to between (80-100 mg / ml) and the tests before and after.

Groups	Pre		post		T calculated	T tabulated	Sig.
	Avg.	Stdev	Avg.	Stdev			
100 meters	88.67	0.996	87.43	0.794	1.96	4.352	non sig.
1500 meters	82.100	0.995	90.10	0.938	11.13	4.352	Sig.
5000 meters	80.43	0.943	92.76	1.009	12.63	4.352	Sig.

Table (2) .Shows the results of the tests before and after the blood sugar and the value of T calculated and indexed and the level of significance for the three groups

When discussing the percentage of sugar in the blood groups of the three, as we observe the scale (2), we find that the first group (running short 100 m) was the arithmetic mean is (88.67) and a standard deviation (0.996) in the pre-testing either the post was the arithmetic mean (87.43) and standard deviation (0.794). While the value of the calculated T (1.96), the smallest of the spreadsheet of \$ (4.352) under the degree of freedom (2) and by the ability of error (0.05) which shows that the difference was not significant.

When Note the second group (1500 m), we find that the arithmetic mean of the test tribal was (82.1) and standard deviation (0.995), while the post was (90.1) and standard deviation (0.938), while the value of T calculated amounted to (11.13) is greater than the tabular amount (4.352) under the degree of freedom (2) at a rate of error (0.05) which shows that significant difference .

5 - Conclusions and recommendations: -

5-1 Conclusions: -

By the results reached by the researcher concluded the following: -

- 1 - an increase in the percentage of sugar in the blood of both runs 1500 and 5000 m as a result of the demolition of the amount of Alkleikojin inventories in addition to the fat stored and analyzed.
- 2 - does not appear to increase in the proportion of sugar in the blood of runs short distances (100 m) to their reliance on anaerobic energy system as a result through the use of high intensity, high-speed performance, high resistance.
- 3 - Knowing the functional and chemical changes improve the body's response and control the functions of various organs and needed by the athletes in all sporting events.
- 4 - to determine the proportion of sugar in the blood of the players is an important indicator to identify the level of physical development and career they have.
- 5 - that the high or low blood sugar when the sample was a natural boundary and this is something that does not appear to cause side effects for them.

5-2 Recommendation: -

- 1 - a periodic laboratory tests for all athletes and athletics at various levels because of their interest on their health and to continue the development of their level.
- 2 - must be the results of tests of the variables in the blood biochemistry all athletes at the disposal of trainers and specialists during the development of training curricula in order that these approaches are based on scientific grounds.
- 3 - the inclusion of other games, such tests to maintain the health of athletes and their level of development and thus performing their.
- 4 - to set up a laboratory blood test for players in all relevant institutions, development and support because of their interest in improving the body's response and control the various functions of their organs.
- 5 - study of exercise required the exercise in terms of time and expense of repetition and the resulting evolution of the adequacy of the work of various functional devices and the accompanying changes in the blood of the players because of its effect in raising the level of performing their.

References:

- 1 Abu Ela Ahmed Abdel-Fattah: physiological basis of sports training - Cairo, Dar Al-Arab Thought, 1997.
- 1 Ahmed Mahmoud server: scientific applications of anaerobic and aerobic training and energy production systems, Cairo, Journal of athletics, No. 26.1999.
- 2 Bahaa Eddin Ibrahim Salama: representation of the bio-energy aerobic and anaerobic representation as soon as the players. Cairo, published athletics, No. 24.1999.
- 3 Salman Ahmed Salman al-Janabi: introductions to the chemistry of life, Basra - Higher Education Press, Iraq, 1984.
- 4 Mohammed Nizar Ibrahim: chemistry and organism: Mosul - Iraq - Higher Education Press - 1984.

- 5 6- Mahmoud Daoud al-Rubaie and others: Theories and methods of Physical Education - Directorate of Library Printing Press - BAGHDAD - The Ministry of Higher Education and Scientific Research - 2000.
- 7 - the depositary of Yassin al-Tikriti and Mohammed Hassan al-Obeidi: applications of statistical research in physical education, Iraq, Mosul University - Faculty of Physical Education - 1999.
- 8-Fox. EL.etal; The physiologg of physical Ecluation and Athletics (4thed) L-and Saunders College publishing, 1988.
- 6 9- Hollmann, w. et el; Metabllic capacity in, dirix, a, etal The Olympic book of Sports, medicine, black well Scievtific publication, exford, 1988.
- 7 10-Meardle, W. D. Etal; Exercise physiologg, (4theal) Williams Wilkins philad eliphia, 1996.
- 8 11 - Singh R.Sirisinghe R. G; singapcre Medical Journl. Htm 1999 Vol, 40 (20).
- 9 12 - Tharp, g, d, (let al). measurement of an arrobic power or Capacity in dite young Track athletes Vising The wing ate. J.Sport, Meot, and physical Fitness, 24, 1985.