

# Aerobic Endurance and Its Impact on Some Biological Variables and Disorders Textures in Judo

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## ABSTRACT

**Introduction and purpose:** This research aims to develop a training program proposal for the development of aerobic endurance and knowledge of its impact on some physical and biological variables and skeleton disorders and their relationship to the level of performance of students. **Method:** Was used experimental method designed two sets, one control group and other experimental, each group (20) female students from the Second Division, were measured both: coefficient breathing, pH, (measured cortisol - Creatine in urine) pulse rate, test (400 m) enemy, disorders and textures, and the level of performance. **Results:** Improved some biological variables, and improves symptoms of disorders textures and the performance level of students resulting from improved aerobic endurance.

**Keywords:** *aerobic, endurance, and its impact, disorders, judo*

## INTRODUCTION

Is a sports training destination of biological processes is only exposing the body to perform different types of pregnancy lead to physical changes in physiological and structural morphology resulting in increased efficiency of the body, and to adapt to meet the demands of various sporting activities, progress in the sport is a functional change and compositional complex occur in the internal organs of the athletes and this changes depending on the textural and biological functional sports more capacity, which would lead to more efficient heart muscle and circulatory system, lungs, and therefore the blood is known as physiological adaptation and the level of individual performance is affected by its response to physical activity to try to reach the highest level of sports and make it general fitness, the level of performance is also influenced by many factors, the most important source of supply.

Subject the individual responses of the sport activity of the outputs of the supply energy for the body and their impact on acid base balance (pH PH) which can be identified through some precise measurements such as pH of body fluids and these fluids saliva, sports, activity associated with the occurrence of many chemical changes within the body, which resulting in the accumulation of certain substances that influence the balance of acid and base materials such lactic acid, which causes the body to accumulate within the speed of fatigue, the body deal with this increase of lactic acid and get rid of it and participate in the process of so-called (non vital) blood where is the first line of defense against any changes in the level of the degree of acid base balance (pH), while other organs and systems in the body to help (13) (15).

It can get rid of some excess acid by the salivary glands, if saliva were collected away from the air, it is noted that the pH of the saliva moving slightly toward the acidity in order to contain carbon dioxide and this means that you can get rid of the acid by saliva, which leads to a lack of concentration of ions hydrogen and thus tends to alkaline pH, and because saliva contains sodium bicarbonate, carbonic acid, and sodium phosphate and the composition of saliva may play a role maintaining the balance acid base their bodies, especially when taking acid and alkali by mouth, and both bodies can cooperate with the league and respiratory physiological systems other organization of the pH of the blood, where the process of respiratory gas exchange, oxygen consumption and disposal of carbon dioxide, and physical activity

is always accompanied by increased gas exchange due to consumption of organic substances in the body for energy production and increased respiratory rate to speed the disposal of carbon dioxide and thus reducing the acid content carbonic in the blood, get rid of hydrogen ions in the case of a lack of pH (acidity) and the opposite happens in case of increasing the pH (alkalinity), pH indicates the negative logarithm of the hydrogen ion concentration in the solution is said that the solution is neutral if the pH of this solution = 7 This occurs when hydrogen ions are equal and if hydroxyl ions increased the concentration of hydrogen ions the solution is acidic and have pH of less than (7) If the increased degree of concentration of hydroxyl ions shouting solution is alkaline pH and has more than (7 ),(12).

The hormone cortisol is the main adrenal cortex and excreted in the day about 5 - 30 mg , change the secretion of cortisol due to a change in the daily excretion Odrino Kortik Trovic hormone (ACTH) from the pituitary gland, with the rise in the daytime and lower in the evening, cortisol and works to increase the sugar in the blood with high physical exertion as cortisol accelerates the process of making sugar from non - carbohydrates, as well as muscle tissue broken, and that the transformation of glycogen to glucose Alkatikolamin impact depends on the presence of cortisol and its effect on the first-mentioned process and the muscle weakness occurs in the case of increased secretion of cortisol to increase the crash and increase muscle creatine. (3), (8). Valchortizul hormone demolition basic hormones result of his central analyzed the protein, since protein degradation increases the availability of amino acids to the process of configuring the false sugar (through a source other than diabetes), the role of cortisol in the organization of the representation of the protein is more important than his role in the regulation of glucose. (14), aerobic is the so-called destination physiological stress antenna because of the adoption of the muscle work on oxygen for energy production, and compared between the word (antenna) and your circulatory system respiratory blamed each stress the word antenna is intended to aerobic metabolism.

The practice exercises are considered a clear impact on the vital organs of the body also have a positive impact on biological and chemical changes associated with the growth of the various elements of physical fitness and muscular system and circulatory tract, it works on the growth of these devices work and improve their performance to the levels of functional performance and contribute to optimal exercise in raising the level of performance physiology of the vital organs of the body as well as upgrading the level of physical fitness and skeleton. (8)

And pain associated with the stability of the body in a position Qwamip wrong for long periods to get used to is what is known skeleton disorders, which comes in the form of a dull pain behind the neck, girdle elbows, wrist, back, knees and feet, and these indicators point to an imbalance of motor apparatus of the body in general or part of which qualifies for the injury, and neglecting deviations skeleton deformities become fixed Qwamip difficult to treat.

Require judo practitioners of the performance of movements of certain specifications characterized by the multiplicity of skills that must be mastered and the players performed during the conditions of competition and provide the level of the sport has become harder to beat the opponent by one skill, but you must use a range of skills are linked together (skills combined) in order to achieve greater efficiency through the process of the attack, so I took it upon themselves to install trainers skills to fit with the abilities of the players (5). All the skills of judo, whether individual skills or skills composite technique is characterized by technical precision based on scientific principles and foundations, requires compatibility with the dynamic responses of work to install the tracks motor skills through the neural pathways for the players, this may lead to the speed of motor performance, which gradually acquire even appear in the sophisticated form of kinetic behavior is characterized by harmony and cruise with an economy of energy exerted and the time required for performance (1).

#### **Purpose of study:**

Developing a training program proposal for the development of aerobic endurance and to identify the impact on (some of the biological variables - cortisol. B - creatinine. C - pH. D - factor of breath. E - Pulse rate, physical variables: A - aerobic, Improving disorder skeleton.

#### **METHODS**

Researcher used experimental method for the appropriateness of the nature of the search, Sample Search from the second year, students at the Faculty of Physical Education in Port Said for the academic year 2011 / 2012 of their number (20) students have been chosen way intentional, Data collection tools The use of medical tests to measure the variables of the crisis research as follows (Biological variables) Cortisol analysis of cortisol in the urine analysis of radio-immunoassay RIA. (Ud / d), analysis of creatinine in the urine Creat chromatography. (Mg / di), The ratio of cortisol / Kriatnen Cortisol creat. (Ug / g), PH strips to measure the PH in the saliva. Factor analysis using a breathing gas (oxycon / 5). (Ratio), Pulse rate using a scale pulse rate Pulse Meter. (N / s), (Physical variables) aerobic test using (5 × 55 m [s]). (18: 212) , ( visual analog scale) Visual Analogues Scales Is a measure of an effective and simple to measure the severity of pain, it is a scale of (1-10) degrees, and the player you select the degree you feel the pain so as to reflect the sense

of this pain. (Annex 4) , (the proposed program) goal of the program: The program aims of the proposed development of tolerance to identify the antenna and its impact on some of the biological and skeleton disorders and its relationship to the performance level of students. **Statistical treatment:** the arithmetic mean - standard deviation - coefficient convolution - test (v) - the proportion of improvement - the correlation coefficient.

**RESULT**

**Table (1)** Significant differences between the measurements before and after the experimental group in the variables under discussion

M	variables	Pre measurement		post measurement		The difference between the value of intermediate	Significance	The medium improvement	
		P	± m	P	± m				
1	cortisol	19.40	4.27	10.82	4.16	8.58	3.71*	44.23	
2	creatinine	161.2	69.75	105.5	23.92	55.9	7.16*	34.63	
3	cortisol / creatinine	122.09	41.93	79.18	24.16	42.91	5.83*	35.15	
4	pulse rate	74.40	2.63	71.60	2.43	3.10	3.57*	4.17	
5	breathing factor	comfort	0.89	0.018	0.93	0.019	0.04	2.11*	4.49
		After the effort	1.54	0.016	1.11	0.018	0.43	2.18*	27.92
		comfort	6.72	0.02	6.84	0.001	0.12	2.18*	1.80
6	pH	After the effort	6.65	0.01	6.71	0.001	0.06	6.90*	0.90
7	aerobic	1.46	0.26	1.02	0.020	0.45	2.1*	30.6	
8	degrees of pain	5.75	0.76	2.47	0.98	3.28	17.84*	57.1	
9	level of performance	16.5	0.433	35.30	2.003	18.8	2.18*	113.94	

Is clear from Table (1) the existence of statistically significant differences between the tribal and distance measurement for the dimensional measurement of experimental group in all the variables under consideration.

**Table (2)** Correlation matrix between the variables of research for experimental group

M	Variables	cortisol	creatinine	creatinine pulse	pulse	breathing comfort factor	coefficient breathing effort after	pH comfort	effort pH	endurance periodic	degrees of pain	Level performance
1	cortisol	1.00	0.224	1030	0.136	0.418	0.471	0.031	0.86	0.081	0.113	-0.106
2	creatinine		1.00	0.418	0.471	0.336	0.086	0.271	0.213	0.031	0.158	-0.175
3	Creatinine pulse			1.00	0.105	0.185	0.213	0.238	-0.233	0.416	0.021	0.356
4	Pulse				1.00	0.031	0.086	0.105	-0.080	0.222	0.311	-0.086
5	breathing					1.00	0.38	0.08	0.113	0.24	-	0.005

	comfort factor		9		8	0.25	
	coefficient					1	
6	breathing effort after	1.00	0.12 2	0.165	0.07 1	-	0.006
7	pH comfort		1.00	0.543 *	0.04 2	0.21 0	0.663 *
8	effort pH			1.00	0.17 0	0.25 5	0.336
9	endurance periodic				1.00	0.40 8	0.399 2
10	degrees of pain Level					1.00	0.413
11	performance						1.00

Is clear from Table (2) inter-correlation matrix between the variables under consideration for the experimental group and the study notes that most of the inter-linkages between the variables statistically significant, indicating that they affect and are affected each other and they include (54) correlation coefficient of (21) D correlation statistically

## DISCUSSION

Is clear from Table (1) the existence of significant differences between tribal and dimensional measurement of experimental group in the biological variables for telemetric where results showed a low concentration of cortisol difference of \$ (8.58), and by improving the premises (44.23) and that improvement is due to the regularity of the sample in the training program proposed, agrees with these results Kremer and others Kraemer et al., (1996 m) (33), which see a greater concentration of cortisol gradually commensurate with the physical demands at the level of intensity from 65 to 80% of the maximum consumption of oxygen to carry less than the maximum.

The observation (Table 1) indicates a decline in the measurement of cortisol / creatinine, where he was the difference between tribal and distance measurement (42.91) in favor of a rate telemetric improve disbursement of (35.15) as well as in terms of decreased creatinine concentration difference of \$ (55.9) and by improvement of (34.63) marked by the decline which occurs in the hormone cortisol that is, at rest, the concentration of cortisol and creatinine as well as the lowest concentration of experimental group, and creatinine is a product of protein metabolism, and drop a sign of lack of demolitions that occur for students during athletic performance. As shown in table (1), no significant differences between pre and post measurement of experimental group to measure the pulse rate at rest for telemetric has decreased difference of \$ (3.10) and by improvement of \$ (4.17) The Roberdz and Robertr Roberges & Roberts (1997 m) (39) indicates that the pulse rate increases with increase in the rate and intensity of training in order to increase the blood circulation to the muscles working to supply the body with oxygen needed for energy production, and There are significant differences between the measurement of pre and post of experimental group in a variable factor of breathing at rest for telemetric difference of \$ (0.04) and by improvement of (4.49) where the measurement was 0.89 in the tribal telemetric 0.93, indicating that in Alkiesin tribal distance was a result of access to energy from the three sources (carbohydrates –Fatty substances - protein), but at different rates and increase breathing comfort factor in the telemetric measurement for tribal reflect increased access to energy from carbohydrates compared to other sources and the consequent increase in the mechanical efficiency of any increase in employment (Performance) Output consumption of energy, that the increase in breathing comfort factor in the telemetric not go beyond (the correct one), In the view of Gunung Canong (1993 m) (31) to breathe more rapidly with the beginning of training, and then gradually increase the speed of speaking, which resulted from increased breathing rate, aided by the increase in body temperature and pointed out that the reason for increasing the rate of breathing is chemicals, such as blood oxygen, carbon dioxide and bicarbonate which affect the chemical receptors in the large blood vessels that lead to the delivery of brain signals to increase respiratory rate and increase the maximum consumption of oxygen. improvement in telemetric researcher add to exercise the students of the program and this is consistent with both Wood and baske Wood & Bask (2005), Dai Bin Mtet and others Die Pen maatet & et al., (2006 m), Krn Rempel and Rempel & Krasen (2006 m) it can achieve positive results for the relief of pain resulting from injury to various parts of the body or treat defects after the exercise program of strength exercises on a regular basis, where a positive impact on strengthening the muscles and relaxes tense muscles and stimulate blood circulation and relieve pain and improve muscle tone and body composition and helps develop the physical attributes and recovery skeleton.

Is clear from Table (2) that the correlation matrix between the variables under consideration D was statistically higher correlation of (0,986) between aerobic respiration and plants after the effort and followed by a link of (0.985) coefficient of breath after the effort and the pH after the effort, followed by a link of (0.947) between the plants after the breathing effort and the level of performance, then the correlation of (0.927) between the plants breath after the effort and pH at rest, and then link the amount of (0.883) between the level of performance and the pH after the effort and link the amount of (0.778) between the level of performance and number pH at rest and then link capacity (771,.) between the level of performance and the degree of pain, and then link the amount of (0.716) between the pH after the effort and pH in the comfort and correlation of (0.709) between the level of performance and aerobic, and then link (0.650) between aerobic and pH at rest, then the link capacity (641,.) between the degree of pain and aerobic, and link capacity (0.598) between the plants to breathe in comfort and breathing after the effort factor, and then link the amount of (0.551) between the aerobic and the number pH after the effort, and then link the amount of (0.542) between the level of performance and breathing in the comfort factor. As shown in Table(2) and a correlation of (0.782) between cortisol and plants breathe after effort, and then link the amount of (0.611) between creatinine and aerobic, and then link (0.532) between cortisol and the role of respiratory endurance, and then link the amount of (0.521) between cortisol and pH after effort, and then link the amount of (0.446) between the pulse and aerobic, and then link the amount of (0.445) between creatinine and pH after the effort, and then link the amount of (0.442) between cortisol and pH at rest.

## CONCLUSIONS

In light of the objectives of the research and Frodah and statistical treatment to researchers concluded:

- 1 - low rate of cortisol in the urine of experimental research group, indicating the ability of students to withstand the pressure of physical exercise test.
- 2 - can be used to measure the variable of cortisol in the urine to identify the level of performance when the selection process for players for sports teams and nationalism.
- 3 - reflects a low concentration of creatinine experimental group students adapt to the pressures on the muscles, compared to female students of the control group, as well as bearing the muscle fatigue that beside creatinine indication to the liver and kidneys and public health.
- 4 - can rely on pulse rate and the coefficient of breath and pH in determining the level of physical fitness in the process of selecting the players and the players in identifying the speed of fatigue.
- 5 - taking into account the formation of free training in the proposed program reflects positively on the level of performance as a result of the rationalization of the production of energy within the body, and the consequent improvement in the mechanical efficiency of the muscles and increase aerobic respiration and improve plants and pH

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