Musamus Journal of Physical Education and Sport (MJPES)
http://ejournal.unmus.ac.id/index.php/physical
Volume 7, No. 4, October 2025, Pg. 256-264
DOI: 10.35724/mjpes.v1i2.1142

Response Of Some Physiological Variables Levels Of Blood Minerals For Long Distance Swimmers

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Abstract

Problem of this research is lack of studies of physiological aspects of swimmers thus was the reason to talk about this problem in particular aims to know some physiological variables and levels of blood salts for long distance swimmers after an effort of 800 m free style swim, know differences of pre-post tests of some physiological variables and blood salts for long distance swimmers after an effort of 800m free style swim. Hypotheses morally significant differences in some physiological variables and blood salts after an effort of 800m free style swim morally significant differences in pre-post tests for some physiological variables and blood salts for long distance swimmers after an effort of 800m free style swim. Researcher adopted causal descriptive method. Sample was intentionally chosen all the (18) swimmers of Nineveh governorate team for swimming were society of research out of which (12) youth swimmers were intentionally chosen. The following statistical methods were used standard deviation, means, t-test for related samples, variance conjunction and SPSS program. Conclusions are effort of 800m free style swimming caused moral significance differences in pre-post tests of calcium concentrations and in favor of post-test, effort of 800m free style swimming caused moral significance differences in pre-post tests of sodium concentrations and in favor of post-test, effort of 800m free style swimming caused moral significance differences in pre-post tests of potassium concentrations and in favor of post-test. There were no morally significant differences of pre-post tests for hemoglobin concentration after 800m free style swimming.

Keywords: Response Of Some Physiological, Variables Levels Of Blood, Salts For Long Distance Swimmers.

1.1 introduction and importance of research

performing any physical effort even if it was simple would cause physiological and functional changes in internal organs of human body .Enhancing physical effort and enabling player to reach high levels is almost related directly to develop his body functions .Physician's achievement is affected by his inner organs on the one hand and on the other is affected by his external environment

like any other sport , swimming is as important as any other sport . It occupies prominent position in Olympic and international games with numerous medals due to different styles and types (Musa , d,s,2007)
good training and planning also received a lot of attention by specialists . Interested in swimming utilized even from other disciplines because competition between swimmers may be settled not by seconds but by parts of seconds more than any other sport , not only because the burden put on functional organs but also about the way swimming is performed , body status inside water , way of breathe , amount of energy while training (Abdulfattah , 2000, p273)
importance of swimming nowadays comes from the need for exercise that keeps humans in shape due to technological developments with least effort exorted .Swimming is a game people can play globally men and women of all ages even children at (3-4) years (Ayash , 1989, p14)
functional adaptations of a swimmer is the conclusion of all physiological and anatomical variables that become real due to repition of a certain act .
continuity of training affects deeply on raise efficiency of functional organs of swimmer . Thus came the importance of this research to reveal physical indicators for trainers whose teams compete in harsh environments (high humid) . using this study , trainers can use various ways and methods to help athlete to adapt to be able to perform perfectly in whatever condition (Adams, 2002,p 10)

2.1 Problem of research
Movement of human body differs when he do free style swimming than when on land in many ways . There is friction , floating , breathing , etc ... when researcher interviewed some swimming trainers she realized the lack of studies handling swimmers physiological aspect . .Thus the idea of research was found

3.1 goals of research
1.3.1 To know some physiological variables and levels of blood salts for long distance swimmers after an effort of 800 m free style swim
1.3.2 Know differences of pre-post tests of some physiological variables and blood salts for long distance swimmers after an effort of 800m free style swim

1.4 hypotheses
1.4.1 Morally significant differences in some physiological variables and blood salts after an effort of 800m free style swim
1.4.2 Morally signifiacant differences in pre-post tests for some physiological variables and blood salts for long distnace swimmers after an effort of 800m free style swim
1.5 Domains
1.5.1 human : swimming team of Nineveh governorate for youth
1.5.2 place ; closed and open swimming pools in aqua towers city / Al-Masarif quarter
1.5.3 time : from 5/7/2023 – 6/7/2023

2-Procedures
2.1 methodology
causal descriptive method
2-2 society and sample
all the (18) swimmers of Nineveh governorate team for swimming were society of research out of which (12) youth swimmers were intentionally chosen . Percentage of

sample out of society of research was (66,66%) equation was done regarding the following variables (height , age , weight and training age) as shown in table (1)

table (1)

arithematic means , standard deviation and variance factor of variables equalized

Statistical means	variable	Arithmatical means	Standard deviation	Variance factor
year	age	16,18	0,70	4,32
cm	Height	167	6,67	3,99
kg	weight	55,78	5,40	9,68
years	Training age	7,20	0,58	8,05

2.3 medical exam

Specialized physician examined the sample to be certain that sample are perfectly healthy with no diseases that may affect result of research variables

2.4 data collection methods

Tests , measurements , technical devices and references were used to collect data

2.5 appliances used

* 4 timing clocks to calculate pulse
* 1 Japanese Sphygmomanometer
* 2 Japanese Stethoscopes
* 2 digital timing clocks measuring time to nearest (1/100) per second
* digital weight and height measuring device / Detecto type / American

- Analysis devices

*analysis kits
* 5 Sc syringes
* sanizing alcohol
* medical cotton
* (Tips) to save samples' types
* bag to save and move blood
* (10cc) calenders
* bandages

2.6 tests and measurments

2.6.1 physical measurements

2.6.1.1. height and weight (cm) and (kg) : were found using digital weight and height measuring device / Detecto type / American . After turning on the device and the device reads zero , the sample member stands barefooted on scale and co-team member moves the metal indicator to touch head of sample and reads the height in cms , same assistant register weight when the digital scale is set it represents weight to the nearest (200 gm)

2.7 measuring functional variables

2.7.1.measuring blood pressure : using Sphygmomanometer and Stethoscopes where band is wrapped around the wrest of testee isert Stethoscopes in the band towards Sphygmomanometer specialized begins pumping to increase air pressure in band to put pressure on artery to temporarily stop blood fluence in artery then gradually lowers pressure .when both pressures are equal , first blood pulse is heard until this sound disappears to regain its normal pace first shrinking blood pressure as well as releasing blood pressure are registerred

2.7.2 calculating heart beats :

Stethoscopes and a timing clock were used on chest (heart area) for (15) seconds then the number was multiplied by (4) to have heart beat per minute .

2.8 biochemicl measures

Researcher did biochemical measures by herself with the help of some specialists :
Measuring concentration of calcium (mlm/dclitre)
Measuring concentration of sodium (mlm/litre)
Measuring concentration of potassium (mlm/litre)
Measuring concentration of blood hymoglobin (gm/litre)
All analyses were done in Al-Kawthar laboratory
2.8.1. prepararing blood samples
Steps were the following :
vein blood samples were collected using syringe (5cm3)
Blood samples were kept in a box and sent to laboratory
9.2 pilot experiment
Pilot experiment took place on 4/7/2023 at 2:00 p.m. lasted 3 hours on the main sample in order for the sample to get used to appliances . Some research variables were measured , to know nature of experience by sample members , helpers , know obstacles when carrying out main experience . water temperture was (18)c and perometer was (19)c
2.10 main experience
First main experience took place at open pool of city of aquatic towers on Thursday 5/7/2023 water temperature was (18) lasted for one hour .experiment began at (3:00) p.m. and ended (6:00) p.m.
-athlete submerged in water for (5) minutes
-athlete made warm up inside and outside pool for (15) minutes
-athlete did 800 m free style swim
-performance time was measured using digital timer
-when finishing all variables were measured
2.10.1 measurements in recess time
* a (5 cc) of vein blood sample was taken from athlete while recessing in capital fossa by specialist biologist
2.9.2 measurements after exercise directly
A (5 cc) of vein blood sample was taken from athletes in capital fossa position
2.11 statistical methods
Researcher used these statistical methods
Arithematic means
Standard deviation
t-test of related samples
variance factor
SPSS pack version (11,0) to treat data
3-results , discussion and analysis :
3-1 debate and discuss results of functioal and biochemical variables pre –post 800 free style swimming exercise

Table (2)
Arithematic means , standard deviations and calculated t-values pre-post 800 free style swimming for all variables of research
Moral at error rate of >(0,05) at atemperature of (13)c and table t-value is (2,16)

Functional variables	Statistical measures	Measurement stage	Arithmatic means	Standard deviation	Calculated t value	Tabled t value	morality
Heart rate	Beat /minute	pre post	69,929 198,143	8,325 7,352	55,585	2,16	moral
Shrinking pressure	Mlm/z	Pre post	117,857 149,286	4,258 18,172	5,896	2,16	moral
Recess pressure	Mlm/z	Pre post	85,000 84,286	6,504 7,559	0,434	2,16	immoral
Calcium concentration	Mlg/dc	Pre post	10,089 10,886	0,690 0,699	12,913	2,16	moral
Sodium concentration	Mlg/dc	Pre post	142,357 146,429	5,242 5,080	5,891	2,16	moral
Potasium concentration	Mlm/litre	Pre post	4,166 4,385	0,246 0,195	7,831	2,16	Moral
Hymoglobine concentration	Gm/litre	Pre post	12,736 12,800	1,097 0,958	1,028	2,16	immoral

Table (2) shows

*morally significant variance at (0,05) level of error between pre-post exercise measures of heart beat and in favor of post exercise calculated t value was (55,585) higher than tabled value reaching 2,16

*morally significant variance at (0,05) level of error between pre-post shrinking blood pressure and in favor of post measurement calculated t value was (5,896) bigger than tabled t value reaching (2,16)

*morally significant variance at (0,05) level of error between pre-post measurements of calcium concentration and in favor of post exercise measurement calculated t value was (12,913) bigger than tabled t value which is (2,16)

* morally significant variance at (0,05) level of error between pre-post measurements of sodium concentration in favor of post measurement , calculated t value was (5,891) higher than tabled t value reaching (2,16)

* morally significant variance at (0,05) level of error between pre-post measurements of potassium in favor of post measurement , calculated t value was (7,831) higher than tabled t value reaching (2,16)

*Absence of morally significant variance at (0,05) level of error between pre-post measurments of recess blood pressure . Calculated t value was (0,434) less than tabled t value which was (2,16)

* Absence of morally significant variance at (0,05) level of error between pre-post measurments of hymoglobine concentration , calculated t value was (1,028) less than tabled t value reaching (2,16)

1-regarding heart beats variable , researcher gave the following reasons for increase in heart beat like

Effect of sympathetic nervous system motivating heart muscle which in turn increase heart beat . (Nicholas & Robert , 1996) mentioned that sympathetic motivation

increases heart beats while parasympathetic system is just the opposite (Nicholas 7 Robert , 1996 , p 276)
(Kyton , 1995) said that strong sympathetic urge can increase heart beats for humans to reach 200beats/minute (Kyton , 1995, p157)
(Abdulfattah , 2002) added that rate of heart beats increase at beginning of exercise due to withdrawl of parasympathetic beat and when increasing muscle works consequently heart beats increase because of sympathetic nervous system (Abdulfattah , 2003 , p 425) . Motivating sympathetic neves fibers leads to release (Norepinephrine) to increase rate of (SA-Node) and accessability rate . these beats are called (cariod-acceleratory) which increases rate and power of beat (Al-Hajjar , 1994,p42)
-researcher attributes increase to impact of (muscle spidles) . Muscle spidles are found in each muscle ,it activates in every muscle cramb and tension (Al-Hilali , 1972.p203) due to shrinking of muscles , nerves ends in muscle will get alerted , send signals to spine to heart center in rectangular part in brain thus increase heart beats (Salama , 1988,p187)
Al-Basri and Salintin 2 exhausting body leads to losing fluids , increase blood concentration increase heart beats . There is a positive relation between body exhaustion and heart beat (Clausen)1 says that decrease of heart beat while recessing is because of endurance training as for existence of random differences in in pulse test after exercise of 800 m swimming is because all players are close in capacities because they have train for long distances regularly . (Abulwafa Abdulalim , 1976) affirms that recovery period of trainees less if the train was of endurance and return of normal heart beat related to kind of exercise and burden (Abdulalim ,1976, p39)
Regarding shrinking pressure , researcher attributes it to fact that shrinking and relaxed blood pressure coincides with nature of exerted effort Abulallaa Ahmed Abdulfattah affirms that muscle effort increases shrinking blood pressure and decreases relaxed blood pressure directly after exercise .high blood pressure is affected by many factors such as age , kind of train , amount of involved muscles , and body parts , blood pressure increases in arms more than legs when the exrecise lies in upper body part , decreases in recess after the exercise . These results agree with (Al-Hajjar , 1994, p88) , (Mohammed Tawfiq , 2005, p 112-115) .(Guyton & Hall ,2006) mentioned that while training , ability of nervous system increases to increase artery pressure because musces need blood part of this increase of local vascular expansion of muscular vessels due to increased metabolism in muscles however there is yet another increase in artery blood pressure syncronized with training artery blood pressure increases by 30-40% and blood flow is doubled (Guyton & Hall , 2006, p208)
(Hussein , 1990) adds that blood pumped by heart pushs blood in arteries and increase pressure on vessels , shrinking of arteries increase resistence of blood flow so heart is forced to pump harder to push blood through narrow arteries that consequently increase blood pressure (Hussein , 1990, p 110)
(Abdulfattah , 2003) says that blood pressure depends on many physiological factors like amount of heart pump , resistence of blood flow and sticky . any increase in any of those factors increase artery blood pressure on short term blood pressure is regulated by sympathetic nervous system and on long term by kidnies . There are sensors of blood pressure in (Garotid) and (Aorta) called (Baroreceptors) sensitive for any changes in blood pressure (Abdulfattah , 2003, p414)
About recess blood pressure , researcher attributes its decrease to increase of heat in body center and decrease of resistence in limbs in surface areas of body due to

vascular increase to distribute heat . (Scotless & Scotless , 1978) mentioned that overheat of muscular effort increases skin circulation to prevent this increase , extension of small blood vessels and skin arteries during muscle effort or during hot day increases amount of circulating blood through skin (Scotless & Scotless , 1978, p522)

Again this result agrees with (Al-Hajjar 1994) and (Mohammed Tawfiq 2005) regarding calcium , researher attributes that to losing big amount of water specially from plasma due to sweat .This will increase concentration of blood salts This agrees with (Al-Hajjar , 1994) and (Majid & Moslih , 2002)

Results of sodium agrees with (Al-Hajjar , 1994) , (Qobu' et al) , (Ahmed Nasreldeen ,1994) . When talking about potassium the results of this research agrees with (Ahmed Nasruldeen 1994) (Al-Hajjar 1994) and (Qubu' et al . Researcher attributes increase in potassium to increasing blood acidity that leads to exchange hydrogen by potassium on cell wall hydrogen enters cell to get out in the form of iodate of potassium (Wikipedia, N.A, 2009)

About hymoglobine there were no moral differences for both positions . researcher attributes that while exercising body will lose fluids via sweating that will increase concentration of red blood cells and hymoglobine .agrees with (Alawi Abdulfattah , 2000) and (Al-Syed , 1991)

4-conclusions and recommendations

1-conclusions ;

Exercise of (800m) free style swimming made a morally significant difference in pre and post measurement of heart beat and in favor of post exercise

Exercise of (800m) free style swimming made a morally significant difference in pre and post measurement of shrinking blood pressure and in favor of post exercise

Exercise of (800m) free style swimming made a morally significant difference in pre and post measurement of calcium concentration and in favor of post exercise

Exercise of (800m) free style swimming made a morally significant difference in pre and post measurement of sodium concentration and in favor of post exercise

Exercise of (800m) free style swimming made a morally significant difference in pre and post measurement of potassium concentration and in favor of post exercise

Exercise of (800m) free style swimming didn't make a morally significant difference in pre and post measurement of relaxing blood pressure

Exercise of (800m) free style swimming didn't make a morally significant difference in pre and post measurement of variable of hymoglobine concentration

2-recommendations

-trainers must pay attention to physiological and morphological aspects when choosing swimmers

-pay attention to professional swimming in training programs and methods

-make more researches and studies about biochemical and physiological variables in long distances swimming

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