ISSN NO. 2320-5407

Journal homepage: http://www.journalijar.com

INTERNATIONAL JOURNAL OF ADVANCED RESEARCH

RESEARCH ARTICLE

The effect of magnetized treated water on some blood parameters and total weight in Cyprus shame male.

Atheer salih Mahdi

Department of Animal Resources - Faculty of Agriculture - University of Kufa – Republic of Iraq.

Manuscript Info

Manuscript History:

Received: 14 December 2015
Final Accepted: 16 January 2016
Published Online: February 2016

Key words:
magnetized treated water, blood parameters, total weight, Cyprus shame male

Corresponding Author

Atheer salih Mahdi.

Abstract

This study was conducted to evaluate the effect of magnetized treated water on some blood parameters and total weight in Cyprus shame male. Twenty-four Cyprus Shami male goats (bucks) used with ages ranged from 1.0 - 1.5 years and average weights between 60-65 kg at the start of the experiment. Bucks divided randomly into three groups equal in number (8 Buck / group).first group drinking tap water only, which consider as control group. Second group drinking magnetized treated water with magnetic flux density (1000 Gauss,t_1) and the third drinking magnetized treated water with magnetic flux density (2000 Gauss,t_2).

Results shows: mathematical increase in body weight among the experimental group. started in the second week of the experiment, comparing with the primary weight for all groups, a significant increase ($P < 0.05$) occurs at the Twelfth weeks of experiment in t2 group comparing with the control group also the t_1 and t_2 groups shows significant superiority($P < 0.05$) in weight gain comparing with control.

Hemoglobin concentration increase in all groups from the second week of experimental, t1 and t2 groups shows an obvious increase starting from the fourth to twelfth week from the experiment, but they do not reach the significance.

Packed cell volume percentage rises in all groups from the second week of experimental, t1 and t2 groups shows an obvious increase starting from the fourth to twelfth week from the experiment, but they do not reach the significance.

White blood cells count shows a significant difference ($P < 0.05$) in t1 and t2 groups comparing with control starting from the sixth week until the termination of the experiment.

Neutrophil cells increase significantly ($P < 0.05$) in control groups at the tenth and twelfth weeks comparing with the t2 group.

Eosinophil cells percentage revealed there is a slightly increase in all experiment group compering with starting value but they do not reach significance

Monocytes shows there is a slightly decrease in there percentage in all experiment group compering with starting value but they do not reach significance.

Lymphocytes percentage expressed significance in t1 and t2 group at the sixth week comparing with control. Moreover, there is significant increase in t2 group at the tenth and twelfth weeks comparing with control

Introduction:-

Water considered as an important factor in all the vital activities of the body. it is basis of blood circulation, digestion and absorption of food and disposal waste, its regulate body temperature and chemical reactions, dissolved the enzymes, transmits hormones, oxygen and antibodies, and to performed these functions perfectly it was necessary to be water more liquid and less viscous to access faster to the body organs (1).

Biological facts proved the role of magnetic forces in living body, they create and keep of the energy fields in the body, and the peak of body activity occur during the presence in electrochemical fields, which stimulated due to Magnetic effect (2,3).The relationship between living body and magnetic energy is very strong and effective (4). Water Created originally by magnetic power and interacts with the body's vital magnetic effect which helps retaining to the state of bio-balance (5). Environmental changes affected this vital balance, which led to appear of specific pathological cases (6).

The use of magnetically treated water in animal's farms showed significant impact on their health and vitality as well as a significant decrease in mortality, and express significant increase in calves and sheep weight improve final product quality(7).

Material and methods:-

This experiment was conducted in ruminant research station in Abu Ghraib / animal Department of Agricultural Research / Ministry of Agriculture and Research Department. For the period from May 19, 2015 until august 17, 2015.

Twenty-four Cyprus Shami male goats (bucks) used with ages ranged from 1.0 - 1.5 years and average weights between 60-65 kg at the start of the experiment.

Bucks divided randomly into three groups equal in number (8 Buck / group).bucks emplaced in three adjacent pens half opened with area 25 m². Food submitted for bucks 2% of live body weight, in two meals morning and evening. Total protein content in the diet of 14% consisting of 37% wheat bran and 35% of barley and 20% Yellow corn and 5% SBM and 2% limestone and 1% salt. While forage (alfalfa hay) submitted in sufficient quantities. The minerals blocks were present in front of the bulk always. animals grazing 3 - 4 days / week for 3 hours / day in the pastures of the station itself away from any source of drinking water for the duration of the experiment.

The source of Drinking water used in the experimental groups is tap water the first group drinking tap water only which consider as control group. Second group drinking magnetized treated water with magnetic flux density (1000 Gauss,t_1) and the third drinking magnetized treated water with magnetic flux density (2000 Gauss,t_2).
Water magnetically treated by using dipole (Magnetotron) which Manufactured in water processing laboratories / Ministry of Science and Technology magnetic flux density 1000 and 2000 gauss. The magnetization of the drinking water for the second and the third group by linking each group device with water source the direction of water flow through the device starting by the (North Pole) and ending with (South Pole) (8).

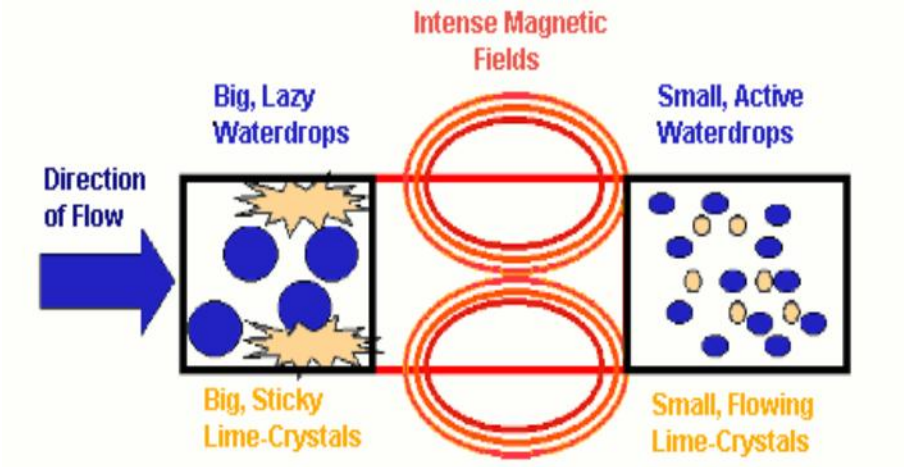

Figure (1) the mechanics of magnetized treated water device (9)

With water flow 0.6 - 1.0 m/sec until containers filling according to the recommendations of the technical laboratory /department of water treatment. Drinking water switched for the three groups every 6 hours according the instructions of the magnetic manufacturer, with continuous compensation for the water that the animals drank to maintain the provision of magnetized water on the length of the day for the animals (9, 10). Containers Emptied at about seven o'clock and re-filled with magnetized water at seven in the morning so that the animals drink the largest amount in the morning (11).

The strength of the magnet was measured by a gauss meter before the initiation and after the termination of the experiment at water processing laboratories / Ministry of Science and Technology.

The body weights of the experimental groups measured at the start and kept measured each two weeks to the termination of the experiment by scales used for large animals.

Blood collected at the start and kept collected to the end of the experiment. At eight o'clock in the morning before animals fed. from the jugular vein and empties in tube containing EDTA to determine the concentration of hemoglobin, and total number of red blood cells (RBCs), and white blood (WBCs) analyzed blood samples using veterinary blood analysis device of the type GENEX for the duration of the experiment.

Differential white blood cell count basophiles, eosinophils, monocytes and lymphocytes, analyzed by placing a drop of blood on one end of a slide, and using a spreader slide to disperse the blood over the slide's length. The slide is left to air dry, after which the blood is fixed to the slide by immersing it briefly in methanol. After fixation, the slide is stained using the May-Grünwald-Giemsa method to distinguish the cells from each other: the basophilic structures (which take up basic dyes) are colored in blue; the acidophilic or eosinophilic structures (which take up acid dyes) are colored in red whereas neutrophilic structured take up both dyes and are colored brownish purple. (12).

Statistical analysis:-

All data analysis was performed statistical analysis using SPSS software program (22). All values were expressed as Mean ± standard error of mean (SEM). Differences between means were considered significant at $P < 0.05$ under a following model: $Yij = \mu + Ti + eij$ Where is Yij= studied Trait belonging to the observation j and treatment i. μ=over all mean, Ti= Effect treatment (0, t1, t2) gm/head/day. Eijk= random error.

Results:-

Table 1 express mathematical increase in body weight among the experimental group. started in the second week of the experiment, comparing with the primary weight for all groups, a significant increase ($P <0.05$) occurs at the Twelfth weeks of experiment in t2 group comparing with the control group also the t_1 and t_2 groups shows significant superiority($P <0.05$) in weight gain comparing with control.

Table (1) the effect of magnetize treated water in body weight with the Cyprus shami buck (kg ± standard error).

groups / Weeks	control	T1	T2
Zero	**66.70±1.20**	**68.60±1.40**	**68.30±1.50**
Second	**67.40±1.10**	**69.00±1.10**	**69.20±0.80**
Fourth	**68.10±1.50**	**69.70±1.30**	**70.10±1.40**
Sixth	**70.40±0.50**	**70.60±1.10**	**70.70±1.40**
Eighth	**72.90±0.40**	**74.30±0.40**	**75.20±0.30**
Tenth	**73.70±0.50**	**75.90±0.30**	**77.90±0.50**
Twelfth	**74.50±0.40b**	**77.80±0.30 ab**	**80.80±0.40 a**
Weight gain	**7.80±0.88 c**	**9.20±0.80 b**	**12.5±0.54 a**

- **Mean± SE**
- **Mean with different liters are significantly different (p<0.05)**

Table 2 shows increase in hemoglobin concentration in all groups from the second week of experimental, t1 and t2 groups shows an obvious increase starting from the fourth to twelfth week from the experiment, but they do not reach the significance.

Table (2) the effect of magnetized treated water in hemoglobin concentration with the Cyprus shami buck (gm/100cm3 ± standard error).

group / Weeks	control	T1	T2
Zero	8.30±0.20	8.00±0.40	7.12±0.30
Second	9.46±0.50	9.22±0.30	7.15±0.80
Fourth	9.06±0.80	10.12±0.70	10.5±0.20
Sixth	9.18±0.30	10.24±0.30	10.62±0.20
Eighth	9.46±0.10	11.06±0.20	10.98±0.40
Tenth	9.46±0.80	11.06±0.60	11.24±0.30
Twelfth	9.30±0.60	11.18±0.30	11.48±0.20

Table 3 shows increase in packed cell volume percentage in all groups from the second week of experimental, t1 and t2 groups shows an obvious increase starting from the fourth to twelfth week from the experiment, but they do not reach the significance

Table (3) the effect of magnetized treated water in packed cell volume percentage with the Cyprus shami buck (%± standard error).

group / Weeks	control	T1	T2
Zero	25.00±1.47	23.25±1.94	23.13±1.36
Second	28.60±1.17	26.45±1.20	24.33±0.75
Fourth	27.80±0.40	28.25±0.14	31.73±0.49
Sixth	29.40±0.76	28.65±0.77	31.13±0.63
Eighth	30.20±0.63	32.05±0.25	32.93±0.76
Tenth	30.20±0.83	33.23±0.63	33.73±0.17
Twelfth	29.80±0.40	33.63±0.51	33.53±1.48

Table 4 explain that there are significant difference(P <0.05) in white blood cells count in t1 and t2 groups comparing with control starting from the sixth week until the termination of the experiment.

Table (4) the effect of magnetized treated water in total white blood cell count with the Cyprus shami buck (1000/cm3 ± standard error).

group / Weeks	control	T1	T2
Zero	6.36±0.70	7.40±0.33	6.26±1.05
Second	6.47±0.30	4.15±0.12	6.50±0.39
Fourth	7.09±0.60	6.90±0.50	6.57±0.80
Sixth	6.15± 0.40 b	7.60±0.40 a	7.70± 0.40 a
Eighth	5.50±1.90 b	7.19±0.12 a	7.10±0.80 a
Tenth	6.59±0. 50 b	8.25±0.14 a	8.60±0.80 a
Twelfth	5.65±0.10 b	7.61±0.70 b	7.84±0.60a

- **Mean± SE**
- **Mean with different liters are significantly different (p<0.05)**

Table 5 declare there is a significant increase (P <0.05) in control groups at the tenth and twelfth weeks comparing with the t2 group**.**

Table (5) the effect of magnetized treated water on the percentage of neutrophil cells in the differential diagnosis of white blood cells in Cyprus shami buck (% ± standard error).

group / Weeks	control	T1	T2
Zero	60.00±0.30	60.00±1.8	62.00±0.40
Second	60.40±3.90	60.25±3.00	66.40±3.00
Fourth	61.75±0.90	63.00±2.00	60.93±3.00
Sixth	65.10±1.50	61.00±1.90	61.40±2.00
Eighth	67.20±1.50	66.15±1.9	66.40±2.50
Tenth	64.60±0.45 a	60.20±2.50 ab	57.60±2.00 b
Twelfth	68.00±0.57 a	65.60 ±0.78 ab	55.6±0.62 b

- **Mean± SE**
- **Mean with different liters are significantly different (p<0.05)**

Table 6 revealed there is a slightly increase in all experiment group compering with starting value but they do not reach significance.

Table (6) the effect of magnetized treated water on the percentage of Eosinophil cells in the differential diagnosis of white blood cells in Cyprus shami buck (% ± standard error).

group / Weeks	control	T1	T2
Zero	3.30±0.17	2.40±0.90	3.59±0.50
Second	2.75±0.86	2.31±0.29	3.35±0.72
Fourth	3.40±0.77	4.49±0.75	4.12±0.40
Sixth	2.55±0.50	2.40±0.31	2.57±0.56
Eighth	3.25±0.48	3.62±0.35	3.55±0.20
Tenth	3.61±0.80	3.80±0.88	3.69±0.50
Twelfth	3.40±0.45	3.20±0.60	3.20±0.40

Table 7 shows there is a slightly decrease in the percentage of monocytes in all experiment group compering with starting value but they do not reach significance.

Table (7) the effect of magnetized treated water on the percentage of monocytes cells in the differential diagnosis of white blood cells in Cyprus shami buck (% ± standard error).

group / Weeks	control	T1	T2
Zero	4.20±0.27	5.00±0.78	4.35±0.60
Second	3.30±0.30	2.40±0.50	3.40±0.50
Fourth	3.56±0.60	4.30±0.70	4.70±0.50
Sixth	3.33±0.20	3.39±0.30	3.50±0.76
Eighth	2.50±0.30	4.45±0.77	3.70±0.50
Tenth	3.10±0.35	4.25±0.40	3.70±0.40
Twelfth	3.12±0.35	4.45±0.70	3.81±0.27

From the Table 8 there is a significant increase ($P < 0.05$) in t1 and t2 group at the sixth week comparing with control. Moreover, there is significant increase ($P < 0.05$) in t2 group at the tenth and twelfth weeks comparing with control.

(Table 8) the effect of magnetized treated water on the percentage of lymphocytes in the differential diagnosis of white blood cells in Cyprus shami buck (% ± standard error).

group / Weeks	control	T1	T2
Zero	25.40±0.53	27.10±2.83	25.30±1.59
Second	29.66±0.13	30.80±0.50	30.80±0.90
Fourth	30.80±0.90	33.2±0.25	33.00±0.63
Sixth	24.70±0.10 b	33.15±0.53 a	33.90±0.86 a
Eighth	30.50±1.40	30.90±2.10	34.50±0.53
Tenth	32.00 ±1.12b	34.50±1.87 ab	36.17±1.57a
Twelfth	31.50±0.15 b	34.30±1.66 ab	37.00 ±0.83a

- **Mean± SE**
- **Mean with different liters are significantly different ($p<0.05$)**

Discussion:-

The significant increase in total body weight in treatment groups comparing with control may be because the ability of magnetized treated water to improve circulatory system and that lead to increase blood flow carrying nutrient and oxygen to different tissue (14) and increase feed conversion and metabolic energy (15).

As the depletion of ammonia by rumen microflora means increased microbial protein caused by drinking magnetized treated water, which leads to activation of cells activated by the Metabolic processes.(16,17)

The researcher's shows the important of magnetic fluxes density in weight increase, because they stimulating weight increase in certain levels and do not affecting in low levels such as 500 gauss (18).

Magnetized treated water effect blood image by increasing the surface area of the red blood cells, which is lead to increased oxygen exposing area and consequently increase the access of oxygen to the body's cells, and increase waste elimination, which improves body vitality (19).

Each hemoglobin molecules contain four iron molecules, which react easily with oxygen. Circulation of blood throw blood vessels caused by ion and electron electric forces developing to a magnetic field with blood vessels (20).Magnetized treated water attract blood iron causing vasodilation and increase in blood flow, hemoglobin and red blood cell concentration and enforcing the magnetic fields between blood and blood vessels(21). The benefit of magnetic water on packed cell volume and hemoglobin may attributed to increase in production of these cells from bone marrow, circulatory system under effect of hormonal factors(23)

It also caused increasing in immunoglobulins and improving phagocytosis in liver, spleen, blood circulation (22). In addition, increase activation of B and T cells (24).

Acknowledgment:-

The author sincerely thank to Dr. ahmed alaa aldeen and all the technicians and workers at ruminant research station in Abu Ghraib for their efforts in the fields and laboratory works.

Reference:-

1. Michael, G. R .Howard, and Harold, R. (2002) Effect of Naturally Magnetized Water with IV-DMPS Treatment on Increase Mercury Excretion Post Removal of A Malgan Filling. Center for Holistic Dentistry Los Angelo's, CA.
2. Kronenberg, k. (1985).Experimental evidence for effects of magnetic fields on moving water .IEEE transaction on magnetic 21(5).
3. Johnson ,M.T; Vanscoy-Cornett, A. and Vesper D.N, (2001) Electromagnetic fields used clinically to improve bone healing also impact lymphocyte proliferation in vitro. Biomedical Sciences Instrumentation;37:215-220.
4. Cope, F.W. (1980).Magnetic currents in flowing water: implications for magnetic water and for the immune processes .journal of physiology, chemistry and physics, 12:21-29
5. Jhon , M . (2004) . Electromagnetic effects and Functional Water . Water Systems Aqua Technology for the 21st Century . Tokyo-Japan.Tech.J.(2)
6. Wullaert;R.A.(2007).Expanding a new scientific view of the functional properties of water .micro skin care 2001 .the functional water society of north America.
7. Allen, J. (1991). the soft option dairy farmer. J.Anim.Nutri 38 (12): 26-67.
8. Mustafa,m.abdulghani. 2007. Effect of Magnetic Technology of water treatment 0n productive and physiological performance of embryos, broiler breeders' and hatched chicks in different climates. Doctoral thesis - Faculty of Agriculture - University of Baghdad-Iraq.
9. Atteyh, A.J.2008. Effect of Magnetic Water and Vitamin E on Production, Physiology and Reproduction In local male Kids. Master thesis. College of Veterinary Medicine, University of Baghdad-Iraq.
10. Kamil, A.M.2011. Effect of the magnetic treated water on the milk yield and some of its composition of lambed Turkish Awassy ewes and their lambs weights. Master thesis. College of Veterinary Medicine, University of Baghdad-Iraq.
11. Al-Sabeea, W.S.2008. Effect of magnetic water and vitamin E in productivity, physiologically and reproductively of traits of Awassi ewe lambs. College of Veterinary Medicine, University of Baghdad-Iraq.
12. Seiverd;C.E.(1973).Hematology for Medical Technologyies 4th (ed).;Lea and Febiger .Philadelphia. Pp: 117-120.
13. SPSS. (2008). Statistical package of social science, version 16.users guide for statistical, Chicago. USA
14. Bellokossy, F.K. (2000). Magnetisation of Water and other Liquids . Indian Gyan.pp:12-20
15. Patterson, D. C. and Chestnut, D .M . B. (1994) the effect of magnetic treatment of drinking water on growth, feed utilization and carcass composition of lambs. Animal Feed Science and Technology, 46 (1-2) , : 11 – 21.
16. Al-Kabi W (2006) Study of water-magnetic effect on the microbial content of the water Aldioanah River and its impact on the genetic content in mammals. University of Qadisiyah, Iraq.
17. Al-Hafez MA, Nadia MB, Arif KH (2013) Effect of the magnetic water on rumen kinetic in Awassi rams. Diyala Agri Sci J 5(2): 458-464.
18. Reminick , H. (2001). The Effect of naturally Magnetized water on increase cellular hydration longevity, ohno institute on water and health. 10(6):11-15.
19. Bergeron , Carol R.N. (2006) . Live Cell Microscopy Test Results. Bio Magnetics Newsletter .Magneto Core Bio Magnetics mag12 (2):22-26.
20. Laycock , D.C. (2001) . A theory of electromagnetic interaction with bone and connective tissue . Westville Concultants . U.K.review American Medical Association.
21. Rokicki , R . (2006) . Magnetic fields and electro polished metallic implants . Medical Device and Diagnostic Industry . (www .devicelink.com).
22. Donohue, Paul G. (2003). Can you drink too much water? Winona Daily News mag 1(12) pp89-95.
23. Mbasa SCK, Poulsen JSD (1991). Influence of pregnancy lactation and environment on hematological profiles in fanish Landrace dairy goats (caprahircus) of different parity.Biochem. 100(2): 403-412.
24. Salem ,A. A; Ben Salem. H; Abidi, M. R. and Mohsen ,H .(2006) Effects of static magnetic field exposure on hematological and biochemical parameters in rats , Biology and Technology J. 49: 889-895.