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EVALUATION OF PHYSICAL PERFORMANCE CAPACITIES OF ENDURANCE, DEHYDRATION AND WEIGHT VARIATIONS BODY IN COMPETITION ATHLETES DURING FASTING IN THE MONTH OF RAMADAN

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Abstract:

The aim of the study is study the influence of fasting in Ramadan on physical performance in endurance running , and on body weight in mild climatic conditions on a group of Algerian athletes who practice sports competition. the sample was composed of 13 competitive athletics athletes, males aged between 21 and 33 years old. they underwent evaluation tests before, during and after the fasting of Ramadan, which involved a 3000m flat run, as well as a body weight gain before and after the completion of each 3000m test. A statistically significant regression in the average 3000m running performance was noted during the Ramadan, as well as a decrease in body weight for the same period, associated with dehydration.The study carried out made it possible to deduce that daytime food abstinence and in particular water deprivation during the Ramadan, led to a statistically significant regression in running performance during a running test over a distance of 3000 m flat, as well as a reduction in body weight.

Keywords: endurance- Ramadan - athletes - body weight - competition

Aloui mounir

1. INTRODUCTION

For the Muslim world the month of Ramadan is a sacred month, it is the most important month of the year. The night of destiny (Leylet El Qadr) of the month of Ramadan is better than a thousand months. (Hamdoune, 2007, p. 36) It is a month dedicated to piety and devotion. (Marc, 2005, p. 14) where it is dictated to all Muslims to observe total fasting during all days of the month, which begins before daybreak and ends at sunset. The Muslim cannot drink or eat during this interval, except in strictly specific situations. After breaking the fast he attends the Tarawih which is characterized by night prayers where long passages from the HOLY QURAN are quoted. In view of these recommendations considered essential, athletes in the Muslim world find themselves confronted with a recurring problem, which returns every year on the occasion of this noble month and on which to this day opinions differ. How can we envisage the process of sports preparation for Muslim athletes who participate in sports games, and who will be called upon to win medals? Question to which to date no educational guidance gives concrete methodical indications. In principle in Algeria lessons had to be learned following the participation of certain national teams in official competitions. For the 2009/2010 season and during the holy month of Ramadan, there were the following sporting events:

-The qualifying match of the National Football Team in Algiers against Zambia.
-The world judo championships in Rotterdam.
-The world boxing championships in Milan.
-The cadet world volleyball championships in Italy.
-The Zurich athletics meeting,
-The Rieti athletics meeting
-The final of the Thessaloniki athletics grand prix.

If the national football team which played its match at night barely won by a goal in front of the Zambians, the results recorded by the other disciplines were described as the most disappointing. It is particularly worth remembering the sentence of the coach of the national football team Rabah Saâdane who after the qualifying match for the World Cup against Zambia (which was played at night) declared: “I think that the Ramadan left his mark on our players” (Costill, 2009, p. 15) The problem of compatibility between sport and Ramadan fasting has continued to raise the duality that exists between what is supposed to be scientific evidence and what those in the field suppose to be the result of preliminary

research, between what is observed as a social dogma and what modern methodological trends dictate in the context of sporting practice.

Some sources have reported that athletes participated in competitions while observing the fast. It has even been suggested that our champion Morceli Noureddine participated in a championship while fasting. This information turned out to be false after verification with the athlete himself. Among others, the case of this Algerian athlete deserves to be cited. The participation of a long-distance runner had aroused the astonishment of French sports officials, to the extent that by participating in a marathon he had not hydrated throughout the entire event. After the race he was taken to hospital following health problems. It didn't stop there as he experienced complications, from which he was never able to recover. It is somewhat in this dichotomy that opinions diverge, in a field which, it must be emphasized, has not until now been surrounded by adequate theorization.

Regarding sport and Ramadan fasting, the Franco-Turkish newspaper "Zaman-France" (Magassa, 2012, p. 16) reports in its columns that the organization "Dar al Fatwa" of the Union of Islamic Organizations of France (UOIF) , which is a sort of institution responsible for giving legal opinions by specialists in Islamic law, that athletes who took part in the 2012 London Olympic Games which took place during the month of Ramadan, had the right to be exempted from fasting. The same opinion was given by the ulama of Islamic laws, in Morocco, the United Emirates, Egypt, Tunisia, etc.

In Algeria, Professor Hanifi Rachid of the National Sports Medicine Center of Dely Brahim, in an article published in the newspaper El Watan on September 17, 2009, states (Watan, 2009, p. 14)that the practice of sport during the month of Ramadan poses the problem of perpetual conflict between sport and Ramadan fasting.

From the point of view of management of the training process on methodological levels, it is generally recognized that the psycho-motor and technical-tactical adaptation is carried out in the wake of the optimization of the means, conditions and methods of preparation of athletes in compliance with the objectives to be achieved. In the logic of practicing performance sport there are certain rules that the athlete must absolutely respect. Failure to respect even one of

these regularities will profoundly disrupt the structure of the sports training process as a whole. Taking into account all these remarks and observations, and as part of a contribution to resolving the problems posed by the practice of performance sport during the Ramadan fasting period, research work was initiated in this direction.

In this context, an educational experiment was organized during the holy month of Ramadan in 2004. A 3000 m running test and a recording of body weight were given to a group of athletes: Before, during and after the month of fasting. The experimental group was initially composed of 23 elements, all males whose ages varied between 21 and 33 years old, from different regions of Algeria. Of the 23 starting athletes, for various reasons, and in particular for reasons of general fatigue, duly recognized by the sports medical services, only 13 athletes were able to carry out all the tests requested and on which the study focused (Table No. 01).

Table 1. Sample characteristics

Settings	Comments
Number of subjects in the sample	13 subjects underwent the tests
Sex of sample subjects	Male
Ages of sample subjects	Between 21 and 33 years old
Regions of origin	Different regions of Algeria
Living conditions	Sports diet
The area of evolution	Sports center

Biological data relating to sports practice explain that when practicing high-load endurance exercises and in the case of insufficient rehydration, it is not only work capacity and therefore sports performance that is reduced. but also this will cause disturbances in the water balance and central temperature . (Costill, 2009, p. 7) The athlete exposes his state of health to consequences which can be serious. Among others we will cite the case of American football player from the Minnesota Vikings Korey Stringer. Tuesday July 31, 2001 was a heatwave day, during intense training the latter collapsed on the field, victim of heat stroke. His core temperature was 40°C. 13 hours after this incident, he died . (Costill, 2009, p. 3) The results of scientific work, in particular those obtained during the following events:

-The conference held in Zurich in September 2005 under the direction of the independent research unit of the Medical Commission of the Medical Evaluation and Research Center of the International Federation of Association Football F-MARC (2005 – 03) which had the theme: “The football player’s diet”.

-The summaries of the Consensus declaration of: the "International Association of Athletics Federations" of April 20, 2007 which had the subject: "Food in athletics" (Fédération, 2013, p. 2)

-The joint statement of the American College of Sports Medicine "American Dietetic Association", and Dieticians of Canada "nutrition and athletic performance"

All the results show that there is unanimity between all researchers and scientists on the imperative and vital need for adequate hydration before, during and after exercise during sports practice, for which it is recommended to add mineral elements if necessary. (2003-07-); (2011-08);(2010-10); (2004-11).

All of the above-mentioned data justifies the motivation we had to carry out this research work, especially since we were confronted in the field with problems relating to sports training during the fasting period of Ramadan.

1- Organization of research

1 - 1: The problem

Until today there is no uniformity of approach in resolving problems related to sports practice during the fasting period of the holy month of Ramadan. In a framework of educational operationality and with the aim of making a contribution to a recurring problem that all Muslim athletes encounter every year, we judged that it was important to provide scientific reflection in this direction. From all the aspects surrounding this problem, we have channeled our research towards the areas of sporting performance by choosing a middle distance race: The 3000 m flat and towards variations in body weight particularly during the month of Ramadan, which reflect the unavoidable water losses which result from the breakdown of carbohydrates necessary to cover the energy needs for physical activity (Costill, 2009, p. 05)

1 - 2: Research hypothesis

We hypothesized that the month of Ramadan had a negative influence on endurance running performance in competitive senior athletes in a young state under mild climatic conditions and led to weight loss in the latter which can be mainly attributed to water loss.

1 - 3: Objective of the research

What is the influence of fasting in the holy month of Ramadan on endurance running performance in mild climatic conditions and attempt to interpret variations in body weight: Before, during and after the month of Ramadan in a group of athletes of Muslim faith who practice middle-distance races, such was the object of our study.

1- 4: Research tasks:

To achieve the objective assigned to our study, we carried out the following tasks.

-An appropriate bibliographical study

-An educational experiment which focused on a group of Muslim athletes, practicing running, and who underwent a 3000 m endurance test and a body weight measurement before, during and after the month of Ramadan which was repeated before each test and 01 hour after its completion

-A statistical analysis relating to the study carried out.

-Conclusion that resulted from the study.

1 - 5: methods

As part of the study that we carried out with the group of middle-distance runners, we resorted to the use of the following means:

- A 400m tartan athletics track.
- A rev counter panel.
- A starting clapper.
- Stopwatches (brand: Seiko S23593J - S141)
- A personal scale with an accuracy of 100 grams (brand: Salter 9069GN3R)
- A team of collaborators (technical athletics officials and secretarial staff).
- An outdoor thermometer.
- Secretarial equipment and utensils.

Note: All test results have been the subject of a specific statistical study

1 – 3: Organizational characteristics of the study

Table 2. Study characteristics

Parameters	Observations
The tests took place in October	period characterized by a temperate climate, temperatures vary between 20 and 25 degrees
Tests 3000m + record of body weight measurements	
Tests 3000m	
1- Running tests on 3000m flat **2- Recording of body weight: Before carrying out the tests and 01 hour after their completion**	11 days before the start of the
	25 days after the start of the fast.
	119 days after the fasting period
Observations - Remarks	
1-3000 m flat test: This test is carried out after an individual warm-up. It will be carried out under the supervision of staff whose role will be to check the regularity of its progress. **2- Recording of body weight: Weight gain will be done in shirtless shorts, and this: Before the preparatory warm-up for the test and one hour after its completion. The duration of one hour after the test was carried out was stopped to allow the athlete to recover from the effort made, to towel off, to dry off, and to prepare to resume gaining body weight (in shirtless shorts)**	
Weather situation	
Winds and environmental humidity	1-Before Ramadan - Wind: 09km/h - T°: 29° - Humidity: 66%
	2-During Ramadan - Wind: 11km/h - T°: 27° - Humidity: 57%
	3-After Ramadan - Wind: 14km/h - T°: 19° - Humidity: 44%

2: Results:

The results of the 3000m running tests and their analysis (see appendix tables No. 03 and No. 04) obtained 11 days before the month of Ramadan (test1), 25 days after the start of the fasting period (test2) and 119 after the end of the fasting period (test3), show, according to statistically significant calculations, a clear reduction in the average performance achieved during the fasting observation period, estimated respectively at - 0.331m/s between test1 and test2 and + 0.624 m/s between test3 and test2. The improvement in average performance after the month of fasting is attributed to the development of the training process under normal conditions.

The results obtained when recording the body weight values of the athletes reveal a statistically significant decrease in body weight during the month of Ramadan, compared to the period before and after the month of fasting (see appendix tables No. 05 and No. 06)

3: Discussion:

It is apparent that Ramadan fasting and endurance sports practice do not go well together, as evidenced by the 44% of the sample who were unable to carry out the 03 tests planned due to the state of their health. fatigue that they felt especially during the month of fasting. The performances recorded before, during and after the month of daytime fasting in the 3000m running event, carried out in mild climatic conditions, made it possible to deduce that daytime food abstinence and in particular water deprivation, reduced physical performance in the endurance tests.

The loss of body weight observed during the month of Ramadan and during the same test session (before the test and one hour after its completion) and which was statically validated, suggests that this weight loss is essentially caused by the mechanisms of dehydration. The explanation given to this observation was highlighted by Jack H Wilmore, Marc David L Costill; W Larry Kenney; et al (2009 - 05), as well as by Pierre Leroux – Jean Ferré – Bernard Philippe (Vaast, 2003, p. 9)The latter emphasize that dehydration and weight loss go together, particularly when the athlete does not have the possibility of hydrate as is the case during the fasting period.

Even if the respiratory losses in water vapor are minimal and by adaptive phenomenon the kidney functions will reduce their secretions, the sweating mechanisms will be the ways by which the athlete will lose a lot of body water in the form of sweat, to ensure thermal regulation functions. In addition to this, the use of energy substrates which will have carbohydrates as sources is associated with a loss of water. (Costill, 2009, p. 5)

Weight loss during the same session tells us about water losses which have a great influence on work capacity, which is greatly reduced by dehydration and which can, in extreme cases, cause very serious consequences for athletes. . Furthermore, the decline in performance in middle-distance races, associated with weight loss and dehydration are not the only hazards that the athlete will be confronted with. These disturbances will expose the athlete to serious problems which will harm their health and will largely affect their sporting progress and consistency in sporting results. It should be remembered that 44% of the sample on which the study focused were unable to carry out the 03 tests planned because of the fatigue they felt. The importance of hydration in athletes, which is underlined by the above-mentioned authors, clearly explains that the loss of water from the body without it being immediately compensated has a very negative influence on work capacity and can lead to serious consequences. These authors point out that water represents up to 70% of the body's weight and plays a vital role in the most important biological functions of the body, particularly in terms of thermoregulation, cellular functions, enzymatic reactions, digestion, the circulatory system, the muscular system, etc. In the case of dehydration, all of these organs, systems and functions will experience serious problems.

CONCLUSION

In conclusion of our study and on the basis of the results obtained in our research work, we can say that the practice of competitive endurance sport is not recommended in a state of daytime fasting during the holy month of Ramadan. . Under no circumstances can training sessions or endurance competitions requiring high energy demands take place in the same way as during normal periods (except Ramadan). If it is imperative that the athlete must continue to train or compete during the month of Ramadan, readjustments must imperatively be considered:

Training after the break of the young person is an option that we consider the most appropriate in that case.

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