

Evaluation of Dietetic Changes in the Period of Ramadan

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Abstract

Amongst the changes affecting daily habits during the month of Ramadan, we can distinctively observe the dietetic changes, either qualitatively or quantitatively. Our essential objective of this study is to evaluate the changes brought about by the fasting during Ramadan among Muslims. We analyzed the daily diet by carrying out a prompting survey among 100 volunteer Muslims during the period of Ramadan. We calculated inventory of 3 days consumed food and the preparation and quality of meals. Observing significant changes in diets during Ramadan: The result is a hyper-protein dominated by the intake of proteins (27%). As for the repartition of energy between meals, we concluded also disequilibrium by taking the most part of energy during the first meal. It would be essential to re-adjust the diet during Ramadan in order to reach the most equilibrium possible, which should be necessarily based on adequate education and adaptable nutritional information before the beginning of the month of Ramadan.

Keywords: Ramadan fasting; Diet; Proteins

Introduction

A large part of world's population is Muslim and fast each year during Ramadan. Ramadan is the ninth month of the Islamic Calendar corresponding to moon phases, out at the solar calendar [1]. The fast during Ramadan is different from other types of fasting because it continues intermittently, by ceasing abruptly eating food, drinking fluids and salt during all the day of 14-16 hours (depending on the time of year corresponding to Ramadan), thus taking at night calories and hydro-electrolytes without limitations, eating snacks established by the tradition and other social and religious activities, in a particular environment in transcendental dimension [2]. Therefore, it is evident that during the period of Ramadan Muslims have their nutritional patterns modified. The energy has only to come from three daily meals:

- The first meal (Iftar) corresponding to the breakfast, which has to be taken rash only since the digestive system begins digesting.
- The second meal (Aachaa) corresponding to lunch time, has to be as complete as possible, with meat, vegetables and fruits.
- The third meal (Sohor) corresponding to dinner, should contain a good proportion of slow burn sugars (semolina, cereals) in order to give the body long term energy, milk, dairy products, fresh fruits and liquids in order to have water fixed in the intestinal transit and avoid eventual constipation [3,4].

By studying mainly the diet during Ramadan, we aim as objective to evaluate the dietetic changes produced by the fasting of Muslims. Information gathered relating to nutrition reveal that Ramadan does not imply a malnutrition or inadequate intake of calories [5]. However, this issue is not free from controversy, with a variability depending on the region and conditions surrounding Ramadan fasting. In this respect, many authors talk write regards increasing calories ingested as a consequence of a diet rich in proteins and fat coming from carbon hydrate and proteins [6-8]. Other studies warn from nutritive ration disequilibrium after concluding a hyper-lipid, hypo-carbohydrate and hyper-protein diet [9]. On the contrary, a decreasing total of calories indigested were observed. Finally, studies carried out in other contexts than the Islamic one concluded that the macronutrients indigested turn away from what is recommended for the Spanish people [10].

Materials and Methods

We proceeded to the analysis of the daily intake of macronutrients by persons fasting during Ramadan 2013. To do so, we chose 100 Muslim volunteers during this period, whose age ranged from 20 to 40 years, with 33% women and 67% men. They have been subject to a reminder survey reflecting the diet of each day of Ramadan during the 3 day period after the three meals (Iftar, Aachaa and Sohor). Information accumulated regards consumed food and its quality by measuring them in household measurements (plates, cups, and spoons) and their preparation during the three meals. The questionnaire was filled by each one of the persons of the sample after giving them a series of informative instructions. To validate the reminder of 24 hours we took into consideration three basic aspects:

- Accuracy during the identification of indigested foods and portion sizes.
- Level of quality of data base concerning the food components, the codification and the calculation system of nutrients reflecting the complete composition of food ingested at that time.
- That the choice of days of ingestion represents the habitual indigestion of the subject person.

To conclude, we proceeded to the analysis of macronutrients of the same diet according to a Diet Source program. We used Excel and Microsoft Word applications in order to computerize data.

Results

When analyzing the daily diet of the 100 Muslim volunteers in fast

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	prot (Gr)	Prot (kcal)	SD	HC (GR)	HC (kcal)	SD	Lipids (gr)	Lipids (gr)	SD	E (kcal)	%E MEAL (kcal)
Breakfast	28.95	260.55	138.6	146.65	586.65	483.1	32.34	291.06	330.7	1138.21	47.53
Lunch	27.6	248.4	145.8	71.86	287.44	253.6	20.29	182.61	220.1	718.45	30
Dinner	16.25	146.25	115.2	56.49	225.96	233.4	18.42	165.78	144.7	538	22.47
Total	72.8	655.2	227.4	275	1100	722.4	71.05	639.45	489.5	2394.65	100%
%Nutra ing		27.36			4.6			26.7			
%Nutra recom		15			50-60			30			
P value		0			0.002			0.1			

Table 1: Repartition of nutrients and energy intake between the 3 meals.

during Ramadan through a dietetic reminder during three consecutive days, we observed the high ingestion of proteins in Ramadan, surpassing 27% of the daily calories compared to 15% recommended (being p value higher than 0.05, the difference wasn't significant). Concerning the portion of carbon hydrates, it was a little bit lower than the recommended portion, this is to say 46% of the daily calories compared to 50 to 60% required (being p value lower than 0.05, the statistically change was significant). The calorie portion of lipids of the diet during Ramadan is almost that recommended: 27% compared to 30% recommended (being p value equal to 0, the change was so significant). We can deduce from these results that the diet of Ramadan is hyper-protein. On the other hand, the repartition of energy between the three meals is entirely different from the usual one: the first meal (Iftar) corresponding to the breakfast gives the most part of the daily energy by 47%. The second meal (Aachaa) corresponding to the lunch time gives the second part of energy with 30%, whereas the third meal (Sohor) corresponding to dinner gives the least proportion with 23%. We should mention that the recommended repartition of energy during normal days is as follow: 25% for the breakfast, 30-35% for the lunch, 15% during the afternoon snack and 25-30% during the dinner (Table 1).

Discussion

The ingestion of macronutrients was unbalanced vis-à-vis the recommended portions: It is clear that it is difficult to maintain a balanced diet with less meals per day during the night and resting hours [3]. We observed a high ingestion of proteins (27%) in Ramadan diet. We can explain this by the high consumption of receipts based on meat, chicken and eggs, which represent the feasting character of Ramadan. We have also noticed the important consumption of vegetables such chickpeas and lentils as part of the traditional soap, the important principal daily receipt in Ramadan. These results are in conformity with what is communicated by other studies which noticed the increasing of the consumption of proteins [6,8]. Concerning the portion of carbon hydrates, it is a little bit lower in Ramadan than the recommended portion, reaching 46% per day instead of 50 to 60% required. Some authors speak off hypo-carbohydrate change during fasting [11,12]. The lipid calories portion in the daily Ramadan diet is about the same portion recommended, this is to say 27% compared to 30% required, despite that some traditional receipts of Ramadan contain high portions of carbohydrates (dates, fruit juices, the typical soap, the typical sweets, especially those based on dry fruits and a lot of honey. The light fall may be explained by the reduction of the ingestion of fries which are replaced by Tajines (typical plates of Ramadan). We can deduce from these results that Ramadan diet is hyper-protein. In fact, this was confirmed by some studies, whereas other studies demonstrated that the diet is hyper-carbohydrate with high carbohydrate portions (dates, fruit juices, typical soup, the traditional Ramadan sweets especially those based on dry fruits containing a lot of honey) at the expense of reducing the consumption

of proteins and fat [6,8,13]. However, other studies coming from other cultures demonstrated that Ramadan diet was hyper-lipid because of the predominance of meals rich in fat, meat in sauce, fried potatoes, where we find excessive lipid portions (48% in total) at the expense of reducing the carbohydrates portions and even more proteins [3].

As for the repartition of energy between meals of Ramadan, we observed that it is unbalanced. We must not forget that this energy comes only from three meals in the whole day. The first meal (Iftar, corresponding to the breakfast) gives the most important part of energy (47%), being the first meal after a long fasting day, during which we eat sweets and sugar based products, fruit juices, sweets replacing water for hydration, based on dry fruits and lot of honey. The second meal (Aachaa, corresponding to lunch) gives the second part of 30% of energy. This meal is rich in meat (barbecued meat, brochettes.....) typically in Ramadan. The third meal (Sohor, corresponding to dinner) gives only 23% of the energy.

In the final hours of the night, we consume less food, but plenty of milk, cereals and bakery. These results were confirmed by another study about the repartition of energy between the 3 meals [3].

Conclusion

To have a balanced diet, it is recommended to re-adjust this diet: reduce the consumption of meat and vegetables in the first and second meals (Iftar and Aachaa). On the other hand, distribute the energy on the whole day. We have to reduce the energy coming from the Iftar (breakfast) by lowering the consumption of sweets and taking more energy at the second and third meals, balancing thus the macronutrients. The education and nutritional information are essential before the coming of Ramadan [4,14,15].

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