

ANSWERING REVIEWERS

Name of Journal: *World Journal of Diabetes*
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Nutrition, insulin resistance and dysfunctional adipose tissue determine the different components of metabolic syndrome

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Reviewer 1

I want to thank the reviewer for his/her comments that have helped me improve and clarify some points of the manuscript. I hope the following revised version corrects the misunderstandings and provides appropriate answers to the questions raised. The reviewer's comments in italic font, and my answer in normal font.

1. There are the same information in "Abstract" and "Core tip". Given that the manuscript is a very expanded, abstract should include a summary of its content.

Reply: I have included an "Abstract" of 276 words, a "Core tip" of 112 words, and a "Running title" is provided.

2. In the Introduction, in the place, where Authors begins to write about Mediterranean diet and its effect, a connecting sentence explaining, why he starts to write about it, should be added.

Reply: Following your recommendation, I have included the following paragraph: "After obesity is developed most subjects present insulin resistance (IR) and hyperinsulinemia, probably the first step of a dysfunctional metabolic system. Subjects with more central obesity present a higher risk of IR, hyperglycemia, hypertriglyceridemia, hypoalipoproteinemia, hypertension and fatty liver, and different combination are grouped in so-called Metabolic Syndrome (MetS). In subjects with MetS achieving an energy balance is critical to maintain a healthy body weight, limiting the consumption of food with high energy density (fat). However, high-carbohydrate rich (CHO) diets increase postprandial peaks of insulin and glucose, and triglyceride-rich lipoproteins are also increased, which interferes with reverse cholesterol transport lowering HDL cholesterol, and could deposit fat mainly in central deposits and reduce adiponectin activity in peripheral adipose tissue. However, all these were improved with MUFA-rich diets. In addition, food with high fiber content (vegetables and whole-grain) and food rich in omega-3 and omega-6 fatty acids could improve some components of this dysfunctional metabolic system."

3. The Author should consider reorganization of sections and subsections of the manuscript starting from the section "Adipocyte and adiposity development" to the section "Fatty acid metabolism, enzymes and adipogenesis" and also to change their titles and subtitles. Now it is difficult to understand it e.g. in the subsection entitled "Adipogenesis" the author describes the functions of white and brown adipose tissues, but there is no information about adipogenesis. In the subsection "Fatty acid metabolism, enzymes and adipogenesis" in the sentence "in human, food is an important..." – a citation should be added.

Reply: Following your recommendations, I have changed some titles of sections and subsections. I hope that this organization will increase understanding for the reader.

In the subsection "*Fatty acid metabolism, enzymes and adipogenesis*" in the sentence "*in human, food is an important...*" I have included the following reference: "151. Food and Agriculture Organization of the United Nations. Fats and fatty acids in human nutrition : report of an expert consultation : 10-14 November 2008, Geneva. Rome: Food and Agriculture Organization of the United Nations, 2010".

4. A particularly interesting section of the manuscript is in the end – this is a part describing the impact of diet on the development of symptoms of metabolic syndrome. The Author presented there i.a. a very interesting results of his own study conducted with participation of humans. However, Author should divide this chapter on sections equipped with separate subheadings - such intervention greatly facilitate the work of the reader, searching for specific information.

Reply: These changes have been done.

5. There are numerous language errors (also on figures) in the manuscript - the Author should verify the text – he should do it carefully or ask for help a native speaker. Mistakes are not serious, but quite numerous. Some of them are grammatical, some typographical, e.g. the lack of "s" in the verbs in the third person singular; sometimes the words are written with a capital letter in the middle of a sentence; other typing errors do not allow the reader to understand the content e.g. "brige adipocytes" instead of "beige adipocytes". Other examples: "Rates increases" instead of "rates increase"; "They were studied the acute effects" instead of "it were studied the acute effects"; "The LXR system could participate" instead of "The LXR system could participates"; "insulin sensitive patients" instead of "insulin sensitivity" and others.

Reply: The paper has been read carefully and corrected by me with the assistance of a native speaker. All grammatical and typographical mistakes have been corrected in this new version.

Thank you so much.

Reviewer 2

I want to thank the reviewer for his/her comments that have helped me improve this paper. The reviewer's comments in italic font, and my answer in normal font.

Figure 1 has been slightly modified. The article has been slightly shortened. I think that Figure 1 illustrates some interesting mechanisms to be investigated during the intervention with diets, like those that have been made in Table 2. Therefore, I think that should be interesting its introduction in the article. Unless the publisher deems otherwise.

Thank you so much.