Authors' feedback:

[1] In fact, the synthesis stimulation of monocyte chemotactic peptide-1 the processes of metabolism, growth, and differentiation must be tightly integrated for correct functions. Cell signaling essentially connects and lubricates these occurrences to ensure that progress runs smoothly. The mechanism is schematically illustrated in the following figure (figure 1):

**Figure 1** Activation of monocyte chemotactic peptide-1 synthesis via the mitogen-activated protein kinase/extracellular signal-regulated kinase pathway
The present work studies the correlations between different factors of the heart rate variability, inflammation, metabolic syndrome, and fitness in obese individuals on these variables. The following schema (figure 2) illustrates the proposed relations between the above mentioned factors.

The data of the present study demonstrate the interaction between insulin and leptin by showing a scheme illustrating this interaction in figure 4. The scheme takes into consideration the published work in literature. The ideas of the cross-talk pathways between insulin and leptin at the molecular level (IRS,}

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phosphatidylinositol 3-kinase (PI3K), and MAPK) and the opposite metabolic effects in peripheral tissues play an essential role in the interaction between insulin and leptin.

Figure 4 Interaction between insulin and leptin

Limitations

1. Our individuals were homogenously chosen from the one country, which stands against the generalization to other countries and all population.
2. One cannot find a definite and clear definition of the Metabolic Syndrome in our country.
3. The absence of inflammatory markers.

4. Individuals with some other concomitant disorders such as asthma make difficulties when evaluating fitness.

5. Amelioration in obesity takes relatively long time to activate clinical-changes in heart rate variability measures, Metabolic Syndrome, or inflammatory.

6. Estimating the weight loss of the subjects by simple and direct methods such as body mass index and recipient body mass index is not adequate to calculate the exact values of lost fat.

7. It is important to know that more deep investigations (longitudinal follow-up) for different sets of patients should be carried out to clarify how leptin affect the autonomic dysfunction in patients with and without diabetes.