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## The protection of therapeutic lifestyle change in individuals with prehypertension; a valuable study

*Terapotik yaşam tarzı değişikliğinin prehipertansif bireylerdeki koruyuculuğu; dikkate değer bir çalışma*

To the Editor,

We read the article "Effect of lifestyle modifications on diastolic functions and aortic stiffness in prehypertensive subjects: a prospective cohort study" published-written by Alpsoy et al. (1) with great interest. Recent studies have shown that hypertension has a very important role on atherosclerosis, cardiovascular disease (CVD) and deaths. Hypertension has an increasing prevalence and is one of the leading causes of preventable deaths (2, 3). Prehypertension has been defined on JNC-7's latest report, and was shown to be associated with increased MI and coronary artery disease (CAD) rates (3). The development of CVD is mainly caused by endothelial dysfunction, vascular inflammation and atherosclerosis (4). Atherosclerosis is characterized by a decrease in the elasticity and diffuse thickening of the vessel wall. Studies have shown that patients with prehypertension have increased atherosclerosis with increased systemic inflammation (3). Therapeutic lifestyle changes (TLSC) are recommended today in almost all guidelines (JNC 7, the ATP III and so on.), and has been replaced as the main treatment in hypertension and other CVDs.

The study deserves emphasizing in terms of the design and presentation, and we would like to thank to the authors. However, we would have a few matter of criticism, especially in methods section of the study, the demographic data of the patients have been given a bit superficially. For example, the data seems missing about how much of individuals take alcohol, or how long; how long have they smoked (pack/year will be more

accurate), liver and renal function test results, and so on. At the end of the study it is understood that there is not a decrease in an expected level, such as weight and BMI. It is not fully specified why this occurs and why participants could not comply with TLSC fully. Should it be considered in the form of a continued exercise of 180 hours a week because of the lack of an illuminating data at the introduction and results of the study about the exercise of all patients? Again, a proper exercise should increase HDL levels. Should the lack of a significant amount of increase in HDL levels show the existence of a problem with the alignment of exercise? Perhaps the effectiveness of weight loss and exercise could be more easily interpreted if the insulin resistance (HOMA-IR) were executed (5).

Na restriction (100 mmol/day) have been conducted to individuals participating in the study. It was not fully specified how it was evaluated quantitatively, with 24-hour urinary Na values at the beginning and at the end of study. As you know, our country ranks high in salt consumption (SALTURK 1-2). It would be more meaningful if the quantitative reduction of salt intake was presented. The basic benefit in this study is thought to arise because of the restriction of salt intake. It should be taken into account that consumption of high amounts of salt especially leads to increase in the preload and diastolic overload. It is understood that a portion of the individuals are smokers, but how much of these individuals reduced the amount of cigarettes during the study period, or was a recommendation performed for the stopping smoking? Salt intake and smoking play a role in atherosclerosis and hypertension directly as well as indirectly.

Finally, we think that the study would become stronger if data about systemic inflammation (hsCRP, CRP, STWEAK, etc.) and insulin resistance were added to the study.

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## Author's Reply

To the Editor,

We thank to author(s) for contribution and criticism on our original investigation entitled "Effect of lifestyle modifications on diastolic functions and aortic stiffness in prehypertensive subjects: a prospective cohort study". Prehypertension has been shown to increase the risk of coronary artery disease and myocardial infarction (1). Six months of therapeutic lifestyle changes (TLSC) has been shown to reduce cardiovascular risk in patients with prehypertension (2, 3). There are some studies in which 24-hour urinary sodium excretion was followed during salt restriction (3, 4). On the contrary, some investigators did not follow 24-hour urinary sodium excretion (2, 5). Surely, it would be better to restrict salt followed by urinary sodium excretion. Unfortunately, 24-hour urinary sodium excretion was not monitored in our study because it was rejected by 40% of the participants. However, it should be noted in our study that salt restriction was applied to the control of a dietician.

In our study blood pressure reduction was achieved with TLSC. In accordance with the study of Bavikati et al. (6), TLSC resulted a decrease in both systolic and diastolic blood pressures (BP). Similar to our work, smoking, alcohol use, insulin, C-reactive protein (CRP), urinary sodium excretion, liver and renal functions of participants were not evaluated at baseline and 6<sup>th</sup> month of their study. Since our primary goals were to evaluate aortic stiffness and diastolic parameters response to TLSC, we did not investigated additional parameters such as homeostatic model assessment (HOMA) index, hsCRP or sTWEAK, and some details were not presented. Five male participants were alcohol consumers and 18 were smokers at the beginning of the study and both alcohol consumers and smokers quitted alcohol consuming and smoking in two weeks after participation. In addition, all study subjects' liver and renal functions were normal. Those with abnormal liver and renal functions were not included in the study. We found critics rightful in regard to insulin resistance and some serum inflammatory markers. Surely, it would have further validated our findings, if we had evaluated these parameters.

At the end of the study, we considered that we have reached our goals in terms of TLSC. Although, the decrease in body mass index did not reach statistical significance, participants had significant reduced waist circumference. Decreased waist circumference has been shown to reduce cardiovascular risk. Furthermore, it has been shown that exercise may reduce blood pressure independent of weight loss.

Patients often exercised as brisk walking at least 180 minutes per week. Patients' plasma glucose, uric acid levels and triglycerides decreased, while HDL levels increased but did not reach statistical significance.

Finally, the author(s) claim(s) that improvement in diastolic functions is due to sodium restriction. Certainly, sodium restriction may play a role in the improvement of diastolic functions. However, we believe that decrease in aortic stiffness and improvements of diastolic functions occur due to lower blood pressures and decreased waist circumference after TLSC.

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## Comment on "Traditional coronary risk factors in healthy Turkish military personnel between 20 and 50 years old: focus on high-density lipoprotein cholesterol"

*20 ila 50 yaşında sağlıklı Türk askeri personelinde geleneksel koroner risk faktörleri: Yüksek yoğunluklu lipoprotein kolesterole odaklanma üzerine yorum*

To the Editor,

We read the article, "Traditional coronary risk factors in healthy Turkish military personnel between 20 and 50 years old: focus on high-density lipoprotein cholesterol" written by Barçın et al. (1).

Authors have concluded that the high-density lipoprotein-cholesterol (HDL-C) level needs further clarification in specific age groups without sedentary lifestyle in Turks.

The study is cross-sectional and has good design. But currently we know that nutritional status-saturated fatty acids (SFAs), monounsaturated fatty acid (MUFA), n-6 polyunsaturated fatty acid (PUFAs), n-3 fatty acids, carbohydrate consumption, fructose/sucrose intake, ethanol consumption, weight reduction-has more pronounced effect than sedentary lifestyle on HDL-C levels (2-4).

So, if the study has included the above variables (nutritional status) in addition to sedentary lifestyle, results could be more valid.