

*Editorial***Legumes: A component of a healthy diet***Leila Azadbakht^a, Fahimeh Haghighatdoost^b, Ahmad Esmailzadeh^a*JRMS 2011; 16 (2): 121-122

In the December issue of the Journal of Research in Medical Sciences, Alizadeh et al¹ have demonstrated that consumption of a legumes-rich hypocaloric diet for 6 weeks reduced some anthropometric measures such as waist, hip, triceps, biceps, subscapular and suprailliac skin fold thicknesses among healthy premenopausal women with central obesity. Beneficiary effects of legumes consumption like reduction of proinflammatory biomarkers have been reported previously.² Several cross-sectional and prospective studies have also indicated the negative association of legume consumption with obesity³ and cardiovascular diseases.⁴ Besides the beneficial effects of non-soy legumes, large body of documents are available regarding the effects of soy consumption on controlling and preventing cardio-metabolic risks; improving features of the metabolic syndrome following a short-term period of soy consumption,^{5,6} weight reducing effect of soy intake,⁷ and favorable effects for type II diabetes^{8,9} are some aspects of these beneficial effects.

It has been confirmed by several investigations that chronic non-communicable conditions such as insulin resistance, diabetes, and cardiovascular disease have a close link to obesity.¹⁰ Hence, obesity prevention and treatment could help health promotion.

In treatment aspect, a component of dietary approaches to stop hypertension (DASH) pattern is suggested which is beneficial for several metabolic conditions.¹² So, including legumes among other healthy foods can be of great help in weight management.

Lifestyle modification is the best choice in preventive methods. As shown by Alizadeh et al,¹ legumes consumption can be considered as a component of healthy weight-reducing dietary pattern.¹¹ Furthermore useful components of legumes such as fiber, selenium and L-Argenin and its low glycemic index and low energy dense characteristics might prevent general and abdominal obesity and consequently obesity-related comorbidities.³

In one previous study, the minimum recommended L-Arginine supplement was 8.3 gr/d¹³ while a recent study recommended typical dietary exposures for both selenium and L-Arginine as 200 µg/d and 5 gr/d, respectively. This dosage was suggested based on the side effects and also weak compliance.¹⁴

Legumes, as a good source of L-Arginine and selenium, could improve the weight reducing effect of hypocaloric diet.¹⁴ Alizadeh et al¹ had not reported any significant effect of these dosages of L-Arginine and selenium on anthropometric measurements during 6 weeks. It has been suggested that low glycemic index feature of legumes would decrease insulin secretion³ and ultimately prevents fat accumulation in abdomen. Moreover, L-Arginine, the precursor of nitric oxide (NO) which stimulates glucose and fatty acid oxidation,¹⁵ and also selenium as an antioxidant mineral,¹⁶ exist in high amounts in legumes. Thus, legumes might lead to more beneficiary effect of hypocaloric diet on anthropometric measures and consequently obesity-related comorbidities via different mechanisms. However, more longitudinal studies with different doses are needed.

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Conflict of Interests

Authors have no conflict of interests.

References

1. Alizadeh M, Daneghian S, Ghaffari A, Ostadrahimi A, Safaeiyan A, Estakhri R ,et al. The effect of hypocaloric diet enriched in legumes with or without L- arginine and selenium on anthropometric measures in central obese women. *Journal of Research in Medical Sciences* 2011; 15(6): 331-43.
2. Hermsdorff HH, Zulet MA, Abete I, Martinez JA. A legume-based hypocaloric diet reduces proinflammatory status and improves metabolic features in overweight/obese subjects. *Eur J Nutr* 2010.
3. Stoll G, Bendszus M. Inflammation and atherosclerosis: novel insights into plaque formation and destabilization. *Stroke* 2006; 37(7): 1923-32.
4. Cushman M, Arnold AM, Psaty BM, Manolio TA, Kuller LH, Burke GL, et al. C-reactive protein and the 10-year incidence of coronary heart disease in older men and women: the cardiovascular health study. *Circulation* 2005; 112(1): 25-31.
5. Azadbakht L, Esmailzadeh A. Soy and cardio-metabolic abnormalities: an update. *Journal of Research in Medical Sciences* 2008; 13(2): 88-96.
6. Azadbakht L, Esmailzadeh A. A cross-over trial on soy intake and serum leptin levels in women with metabolic syndrome. *Journal of Research in Medical Sciences* 2010; 15(6): 317-23.
7. Jang EH, Moon JS, Ko JH, Ahn CW, Lee HH, Shin JK, et al. Novel black soy peptides with antiobesity effects: activation of leptin-like signaling and AMP-activated protein kinase. *Int J Obes (Lond)* 2008; 32(7): 1161-70.
8. Azadbakht L, Esmailzadeh A. Soy-protein consumption and kidney-related biomarkers among type 2 diabetics: a crossover, randomized clinical trial. *J Ren Nutr* 2009; 19(6): 479-86.
9. Azadbakht L, Atabak S, Esmailzadeh A. Soy protein intake, cardiorenal indices, and C-reactive protein in type 2 diabetes with nephropathy: a longitudinal randomized clinical trial. *Diabetes Care* 2008; 31(4): 648-54.
10. Dixon JB. The effect of obesity on health outcomes. *Mol Cell Endocrinol* 2010; 316(2): 104-8.
11. Esmailzadeh A, Azadbakht L. Major dietary patterns in relation to general obesity and central adiposity among Iranian women. *J Nutr* 2008; 138(2): 358-63.
12. Azadbakht L, Fard NR, Karimi M, Baghaei MH, Surkan PJ, Rahimi M ,et al. Effects of the Dietary Approaches to Stop Hypertension (DASH) eating plan on cardiovascular risks among type 2 diabetic patients: a randomized crossover clinical trial. *Diabetes Care* 2011; 34(1): 55-7.
13. Lucotti P, Setola E, Monti LD, Galluccio E, Costa S, Sandoli EP ,et al. Beneficial effects of a long-term oral L-arginine treatment added to a hypocaloric diet and exercise training program in obese, insulin-resistant type 2 diabetic patients. *Am J Physiol Endocrinol Metab* 2006; 291(5): E906-12.
14. Crujeiras AB, Parra D, Abete I, Martinez JA. A hypocaloric diet enriched in legumes specifically mitigates lipid peroxidation in obese subjects. *Free Radic Res* 2007; 41(4): 498-506.
15. Jobgen WS, Fried SK, Fu WJ, Meininger CJ, Wu G. Regulatory role for the arginine-nitric oxide pathway in metabolism of energy substrates. *J Nutr Biochem* 2006; 17(9): 571-88.
16. Gruber HJ, Mayer C, Mangge H, Fauler G, Grandits N, Wilders-Truschnig M. Obesity reduces the bioavailability of nitric oxide in juveniles. *Int J Obes (Lond)* 2008; 32(5): 826-31.