

# AMERICAN PISTACHIOS & PRE-DIABETES



Two reports from the same clinical trial suggests that including pistachios as a part of a balanced diet is a safe nutritional strategy that can help reverse the risks associated with pre-diabetes.

A study, published in *Diabetes Care*, suggests that pistachios may have glucose-and insulin-lowering effects and promote a healthier metabolic profile in people with pre-diabetes.<sup>1</sup>

In the other study, published in *Nutrition, Metabolism and Cardiovascular Diseases*, the authors conclude that daily consumption of pistachios may shift the lipoprotein size and particle profile to a less atherogenic pattern in people with pre-diabetes.<sup>2</sup>

The clinical trial looked at 54 adults with pre-diabetes, divided into two groups using a cross over design

## PISTACHIO DIET



During the 4 month pistachio diet, participants ate two ounces of pistachios daily.

### Blood Sugar and Inflammation Response

- Participants experienced a significant decrease in fasting blood sugar levels and insulin, and a beneficial effect on the insulin resistance HOMA-IR marker of pre-diabetes.
- Some signs of inflammation, specifically GLP-1 & IL-18, decreased significantly from baseline, whilst on the pistachio diet.

### Cholesterol Response

- The concentration of small LDL cholesterol particles was significantly lowered in the pistachio diet group compared to the control diet.
- A high number of small, dense LDL particles is associated with a 3-7 fold increase in CHD risk, independent of LDL cholesterol concentration.<sup>3</sup>
- This is noteworthy since those people with pre-diabetes are more likely to develop diabetes within 10 years and they are more likely to have a heart attack or stroke.<sup>4</sup>

## CONTROL DIET



For the 4 month control diet, participants included olive oil and other fats instead of pistachios.

### Blood Sugar and Inflammation Response

The 49 participants that completed the study experienced a significant increase in fasting blood sugar levels, insulin and HOMA-IR marker.

No change in signs of inflammation.

### Cholesterol Response

No change in particle sizes during the study.

### Clinical Trial Details

- Randomized, controlled, cross over clinical trial.
- Each diet group lasted for four months, with two week compliance breaks.
- The diets were matched for protein, fibre and saturated fatty acids.
- Neither group experienced weight gain.

This emerging research suggests that nutrients in American-grown pistachios may help lower blood glucose, further research is needed on this topic.

The findings of this new research adds to the growing body of evidence suggesting that pistachios may have a positive effect on blood glucose and insulin sensitivity.

<sup>1</sup> Hernandez-Alonso P, Salas-Salvado J, Baldrich-Mora M, Juanola-Falgarona M, Bullo M (2014) Beneficial effect of pistachio consumption on glucose metabolism, insulin resistance, inflammation, and related metabolic risk markers: a randomized clinical trial. *Diabetes Care*. 37; 3098-105.

<sup>2</sup> Hernandez-Alonso, P., et al. Effect of pistachio consumption on plasma lipoprotein subclasses in pre-diabetic subjects. *Nutr Metab Cardiovasc Dis*. 2015 Apr;25(4):396-402.

<sup>3</sup> Varady K, Bhutani S, Klempel M, Lamarche B (2011) Improvements in LDL particle size and distribution by short-term alternate day modified fasting in obese adults. *Br J Nutr*. 105; 580-3.

<sup>4</sup> American Heart Association: About Prediabetes. (2015, May). Retrieved from [http://www.heart.org/HEARTORG/Conditions/Diabetes/AboutDiabetes/About-Prediabetes\\_UCM\\_461494\\_Article.jsp](http://www.heart.org/HEARTORG/Conditions/Diabetes/AboutDiabetes/About-Prediabetes_UCM_461494_Article.jsp)



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