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## **Effect of flaxseed on blood lipid level in hyperlipidemic patients.**

[Torkan M](#), [Entezari MH](#)<sup>1</sup>, [Siavash M](#).

### **Abstract**

#### **INTRODUCTION:**

Hyperlipidemia is one of the most important risk factors of ischemic heart disease. Previous studies showed that flaxseed has the potential to improve lipid profiles. In this study we investigated the effects of flaxseed powder intake on lipid profiles of patients with hyperlipidemia.

#### **MATERIALS AND METHODS:**

This study was a randomized controlled clinical trial. Seventy patients with hyperlipidemia participated in the research. After detailed diet and lifestyle education, blood samples were collected from the participants. Patients with hyperlipidemia were randomly divided into two intervention and control groups. The intervention group received 30 g of raw flaxseed powder every day for 40 days. Serum lipids were measured again in two groups after that time. Activity and food intakes of two groups were recorded.

#### **RESULTS:**

In the intervention group, weight and body mass index were considerably reduced. Total cholesterol was reduced in the intervention group and increased in the control group, both of which were significant. Low density lipoprotein significantly increased in the control group and reduced in intervention group; also, triglyceride was increased in the control group and reduced in the intervention group, which were significant Table 1.

#### **CONCLUSION:**

Based on the findings obtained in this research, flaxseed powder intake desirably reduced serum lipids. The differences between two groups on the basis of analysis of covariance test were significant. In all cases except for the HDL-c, this is an effective intervention. Therefore, flaxseed may be regarded as a useful therapeutic food for reducing hyperlipidemia.

[Int J Food Sci Nutr](#). 2009;60 Suppl 6:126-36.

## **Effect of flaxseed gum on reduction of blood glucose and cholesterol in type 2 diabetic patients.**

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### **Abstract**

The effects of ingestion of flaxseed gum on blood glucose and cholesterol, particularly low-density lipoprotein cholesterol, in type 2 diabetes were evaluated. Flaxseed gum was incorporated in wheat flour chapattis. Sixty patients of type 2 diabetes were fed a daily diet for 3 months, along with six

wheat flour chapattis containing flaxseed gum (5 g), as per the recommendations of the American Diabetic Association. The control group (60 individuals) consumed an identical diet but the chapattis were without gum. The blood biochemistry profiles monitored before starting the study and at monthly intervals showed fasting blood sugar in the experimental group decreased from  $154 \pm 8$  mg/dl to  $136 \pm 7$  mg/dl ( $P=0.03$ ) while the total cholesterol reduced from  $182 \pm 11$  mg/dl to  $163 \pm 9$  mg/dl ( $P=0.03$ ). Results showed a decrease in low-density lipoprotein cholesterol from  $110 \pm 8$  mg/dl to  $92 \pm 9$  mg/dl ( $P=0.02$ ). The study demonstrated the efficacy of flax gum in the blood biochemistry profiles of type 2 diabetes.

## **An open-label study on the effect of flax seed powder (*Linum usitatissimum*) supplementation in the management of diabetes mellitus.**

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### **Abstract**

Diabetes mellitus is characterized by hyperglycemia and associated with aberrations in the metabolism of carbohydrate, protein, and lipid that result in development of secondary complications. Extensive studies have indicated that nutritional therapy plays a pivotal role in the controlling or postponing of development of these secondary complications. Several functional foods have been shown to possess hypoglycemic and hypolipidemic properties. Flax seed (FS) is a functional food that is rich in omega 3 fatty acids and antioxidants and is low in carbohydrates. In exploratory studies, FS was incorporated in recipes, which resulted in a reduction in the glycemic index of the food items. These observations prompted us to investigate the efficacy of FS supplementation in type 2 diabetics ( $n = 29$ ). Subjects were assigned to the experimental ( $n = 18$ ) or the control group ( $n = 11$ ) on the basis of their desire to participate in the study. The experimental group's diet was supplemented daily with 10 g of FS powder for a period of 1 month. The control group received no supplementation or placebo. During the study, diet and drug intake of the subjects remained unaltered. The efficacy of supplementation with FS was evaluated through a battery of clinico-biochemical parameters. Supplementation with FS reduced fasting blood glucose by 19.7% and glycated hemoglobin by 15.6%. A favorable reduction in total cholesterol (14.3%), triglycerides (17.5%), low-density lipoprotein cholesterol (21.8%), and apolipoprotein B and an increase in high-density lipoprotein cholesterol (11.9%) were also noticed. These observations suggest the therapeutic potential of FS in the management of diabetes mellitus.