

# Dietary fat from whole foods shows influence on insulin action

## WHAT YOU NEED TO KNOW

Most dietary interventions have metabolic effects (e.g. on abdominal obesity, blood fats, cholesterol levels, blood pressure, blood glucose) in the short term. However, long term effects may require changes to the types of dietary fat consumed to influence body composition and insulin action. This study assessed the effect of ongoing high intake of polyunsaturated fatty acids (PUFA) through walnut consumption on metabolic effects in type II diabetes.

Fifty overweight adults with non-insulin treated diabetes (average age 54 years) were randomly assigned to two groups. One group received only low-fat dietary advice (around 2000 kcal/day, 30% of which came from fats) for 1 year. The other group received both low-fat dietary advice and 30 g of walnuts\*/day for 1 year. Over the treatment period, the two groups were compared for differences in body weight, body fat, abdominal fat, and measures for diabetes.

The diet + walnut group consumed significantly more PUFA than the 'diet only' group. This was attributed to walnut consumption (which contributed 67% of dietary PUFA at 12 months.). Most of the effects were seen in the first 3 months. Both groups demonstrated a 1-2 kg weight loss, with no difference between the groups. Both groups showed improvements in all clinical measurements, except for triacylglycerol (a major blood lipid) levels, which were just above normal at the start of the study. The walnut group had a significantly greater reduction in fasting insulin levels, an effect seen largely in the first 3 months.

**Conclusion: Dietary fat can be adjusted by eating whole foods such as walnuts, with the effect of reducing fasting insulin levels.** Long-term effects were shown but may be dependent on fluctuations in dietary intake and/or the progression of the diabetes.

\*30 g of walnuts is approximately equivalent to 8-11 whole walnuts

## Original Scientific Abstract

### Long-term effects of increased dietary polyunsaturated fat from walnuts on metabolic parameters in type II diabetes.

Tapsell LC, Batterham MJ, Teuss G, Tan SY, Dalton S, Quick CJ, Gillen LJ, Charlton KE. *European Journal of Clinical Nutrition*. Aug 2009; 63(8):1008-15

**BACKGROUND/OBJECTIVES:** Most dietary interventions have metabolic effects in the short term, but long-term effects may require dietary fat changes to influence body composition and insulin action. This study assessed the effect of sustained high polyunsaturated fatty acids (PUFA) intake through walnut consumption on metabolic outcomes in type II diabetes. **SUBJECTS/METHODS:** Fifty overweight adults with non-insulin-treated diabetes (mean age 54+/-8.7 years) were randomized to receive low-fat dietary advice +/-30 g per day walnuts targeting weight maintenance (around 2000 kcal, 30% fat) for 1 year. Differences between groups were assessed by changes in anthropometric values (body weight, body fat, visceral adipose tissue) and clinical indicators of diabetes over treatment time using the general linear model. **RESULTS:** The walnut group consumed significantly more PUFA than the control ( $P=0.035$ ), an outcome attributed to walnut consumption (contributing 67% dietary PUFA at 12 months). Most of the effects were seen in the first 3 months. Despite being on weight maintenance diets, both groups sustained a 1-2 kg weight loss, with no difference between groups ( $P=0.680$ ). Both groups showed improvements in all clinical parameters with significant time effects ( $P<0.004$ ), but triacylglycerol levels, but these were just above normal to begin with. The walnut group produced significantly greater reductions in fasting insulin levels ( $P=0.046$ ), an effect seen largely in the first 3 months. **CONCLUSIONS:** Dietary fat can be manipulated with whole foods such as walnuts, producing reductions in fasting insulin levels. Long-term effects are also apparent but subject to fluctuations in dietary intake if not of the disease process.