

Effects of Sunflower Oil Trans Fatty Acid Ingestion to Blood Glucose Pattern of Mice

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ABSTRACT

Background : Sunflower oil is composed with high unsaturated fat level, such as linoleic acid and oleic acid (Khan *et al.*, 2015). However, the high amount of unsaturated fat causes sunflower oil to be sensitive to heating process such as deep-frying, changing the *cis*-shaped unsaturated fat into *trans*-shaped unsaturated fat (Martin *et al.*,2009). Increased consumption of this trans fatty acid is believed to be one of insulin resistance and Type 2 Diabetes (Krisnasary *et al.*, 2012). **Objective :** This research aims to find effects of sunflower oil and palm oil trans fatty acid ingestion to blood glucose pattern of mice. **Method :** This is an experimental research with pre and post test control group design method, using 36 adult male mice (*Mus musculus*) and divided into 3 groups : negative control group (only water), intervention of sunflower oil trans fatty acid group, and positive control group (intervention of palm oil trans fatty acid). It will be held for 4 weeks, measuring fasting blood glucose and 2-hours postprandial blood glucose before and after the treatment period. **Result :** On the statistical difference analysis (One-Way ANOVA, Kruskal-Wallis H, and Post-Hoc), significant differences of mean fasting blood glucose and mean 2-hours postprandial blood glucose among groups are not found. However, differences within the same group on mean fasting blood glucose pre and mean fasting blood glucose post, as well as differences on mean 2-hours postprandial blood glucose pre and mean 2-hours postprandial blood glucose post, are found. **Conclusion :** Sunflower oil trans fatty acid with 111 mg/100 ml level, have no significant effects on fasting blood glucose and 2-hour postprandial blood glucose of mice in sunflower oil intervention group, compared to mice in both negative and positive controls.

Keywords : trans fatty acid, sunflower oil, fasting blood glucose, 2-hour postprandial blood glucose, mice.