Plant Oils as Functional Food for Glucose- and Lipid Metabolism in Type 2 Diabetics

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AIM: Since the worldwide incidence of Diabetes mellitus Type 2, as well as the costs for the health care system is increasing, the aim of this study was to investigate the effects of plant oils on glucose- and fat metabolism in Type-2-diabetics (T2Diab).

STUDY DESIGN AND METHODS: To study the effects of different PUFA-rich plant oils (a pure single oil – SO and a mixed oil – MO) with a similar fatty acid pattern, on the plasma lipid profile and glucose metabolism, 92 participants (34 insulin-dependent (IDDM) and 58 non-insulin-dependent (NIDDM), each group was randomly divided into two subgroups – SO and MO) were instructed to consume a standardized teaspoon of the respective oil three times per day for 10 weeks (approx. 9 g/d). Blood samples were taken four times (before intervention – T0, after four weeks (T1) and 10 weeks (T2) of intervention, and eight weeks after the end of intervention – T3). After each blood sampling the following parameters were analyzed: triglycerides (TG), blood glucose (BG), HbA1c, total cholesterol (C), HDL-C and LDL-C.

RESULTS: Best results could be found in participants who had BG levels ≥150 mg/dl before intervention (n=38). BG decreased significantly in the SO-NIDDM-group from T0 (187±22 mg/dl) to T1 (168±31 mg/dl; p=0.041) and T2 (175±39 mg/dl; p=0.027). This group also showed a 17% decrease of TG-concentrations after 10 weeks of intervention. A significant reduction of TG levels of 18% (p=0.016) could be also observed in SO-IDDM-group at T2. After 4 weeks of intervention a 12% (n.s.) decrease of BG could be found in this group and a further decrease of 9% (n.s.) was observed at T2. Glycosylated hemoglobin decreased by trend (T0 8.0±0.86%, T1 7.9±0.86%, T2 7.86±0.73%).

CONCLUSION: An easy and practical intervention of type 2 diabetics with few tea spoons of plant oils daily showed significant BG- and TG-concentrations and a slight positive influence on HbA1c.