Abstract
Title: The effect of probiotic supplementation on gestational diabetes
Author: Jeanette Almsberg, Martina Davitkova & Alexander Giannini
Supervisor: Anna Winkvist
Examiner: Frode Slinde
Programme: Programme in dietetics, 180/240 ECTS
Type of paper: Bachelor’s thesis in clinical nutrition, 15 higher education credits
Date: April 5, 2017

Background Gestational diabetes (GDM) is defined as glucose intolerance first detected during pregnancy, and is often a risk factor for developing diabetes mellitus type 2 later in life. The prevalence is about two percent in Sweden. Previous studies have examined probiotics as prevention for GDM and they were proven to have a positive effect on blood glucose and insulin levels. Probiotics use glucose as their primary energy source and therefore reduces glucose absorption which also affects blood glucose and insulin levels.

Objective The aim of this systematic review was to examine the scientific evidence for the effect of probiotic supplementation in women with diagnosed GDM.

Search strategy The databases PubMed, Scopus and Cochrane were used in the literature search. Keywords and MeSH terms were used in various combinations and include: probiotics, probiotic, lactobacillus, bifidobacterium, gestational diabetes, pregnancy diabetes, and gestational diabetes.

Selection criteria Inclusion criteria were studies examining probiotic supplementation in women diagnosed with GDM, RCT studies, human studies and studies available in English or Swedish. Exclusion criteria were studies in which probiotics had been used in the prevention of GDM, animal studies and studies in patients with previously diagnosed diabetes before intervention (type 1 and 2 diabetes mellitus, LADA and MODY).

Data collection and analysis A total of four studies were identified and examined with the template "Mall för kvalitetsgranskning av randomiserade studier" by the Swedish agency for health technology assessment and assessment of social services (SBU). One study was considered to be of high quality and the remaining three studies were considered to be of moderate/high quality. The selected endpoints were fasting blood glucose (FBG), insulin resistance and insulin sensitivity. Evidence was graded using the University of Gothenburg template "Underlag för sammanvägd bedömning enligt GRADE".

Main results There was a significant improvement in FBG in two out of four studies. The remaining two studies did not show significance and pointed in the opposite direction. The strength of evidence was rated as low (++). Three out of four studies showed a significant improvement in insulin resistance. The strength of evidence was rated as moderate (+++). One out of two studies showed significant improvement in insulin sensitivity and the other study pointed in the same direction. The strength of evidence was rated as low (++).

Conclusions There is moderate evidence that probiotics have a positive effect on insulin resistance and low evidence for the positive effect on FBG and insulin sensitivity.

Keywords Probiotics, probiotic supplementation, gestational diabetes, diabetes.