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- 113-124 **EFFECTS OF MATERNAL PROBIOTIC EXPOSURE DURING PREGNANCY AND LACTATION ON THE MOTHER AND INFANT**
Christiana A. Naaktgeboren

ABSTRACT: *Because probiotic foods and supplements are rapidly increasing in popularity, their effects during pregnancy and lactation demand careful attention. This systematic literature review discusses the effects of perinatal probiotic exposure on gut microbiota, the immune system, and nutrient utilization in both the mother and infant. It was found that maternal exposure to probiotics is particularly important in the development of gut microbiota in infants who are delivered by caesarian section or who are formula-fed. Meta-analyses were performed on outcomes related to the immune system. The meta-analyses show that probiotic consumption during pregnancy is associated with a reduced risk of atopic dermatitis in infants. Studies also suggest that maternal probiotic exposure reduces the risk of gestational diabetes and increases the availability of nutrients that the fetus needs for development such as folates and essential fatty acids. Because allergic and metabolic diseases are on the rise and probiotics may be preventative in both of these areas, perinatal exposure to probiotics demands further investigation. The majority of studies suggest that prenatal exposure is more effective than infant exposure. Future research should focus on maternal exposure and should look at dietary sources of probiotics and prebiotics instead of supplements.*

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- 125-132 **THE EFFECT OF RYE BREAD AND *LACTOBACILLUS* GG FERMENTED WHEY DRINK ON FECAL AND URINARY MUTAGENICITY AND FECAL ENZYME ACTIVITIES**
Riitta Korpela, Atte von Wright, Kaj Rätty, Reetta Holma, Tuula Tuure and Hannu Mykkänen

ABSTRACT: *We studied the impact of rye bread and *Lactobacillus rhamnosus* GG supplementation on fecal/urinary mutagenicity and fecal enzyme activities in healthy subjects who consumed experimental meals containing fried meat with high mutagenic activity. Twenty-eight volunteers, mean age 39 y (range 28-58), were randomly divided into 3 intervention groups that received, in addition to a 3-d fried meat diet, either whole grain rye bread 200-240 g/d, *Lactobacillus* GG fermented whey drink 400 mL/d, or no dietary supplementation. 24-h fecal and urine samples were collected, and Ames mutagenicities were subsequently determined, as were the activities of fecal β -glucuronidase, β -glucosidase and urease. A significantly lower β -glucuronidase activity ($\text{nmol min}^{-1} \cdot \text{mg prof}^{-1}$) was detected in the rye bread group [geometric mean (95% CI) 2.0 (1.3-3.2)] in comparison to the control group [4.0 (2.4-6.7), $p = 0.044$] and to the group receiving the *Lactobacillus* GG supplementation [3.9 (3.0-5.0), $p = 0.047$]. Mutagenicity was not significantly affected. In conclusion, rye bread consumption appears to reduce fecal β -glucuronidase activity (an enzyme important in carcinogen activation) and might therefore reduce the carcinogenicity of feces.*

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133-140 EFFECT OF THE CONSUMPTION OF A SYNBIOTIC SHAKE ON THE INTESTINAL MICROFLORA OF ELDERLY PEOPLE

Camila Moroti, Loyane Francine Souza Magri, Christiane Maciel Vasconcellos Barros DeRensis, Marcela De Rezende Costa, and Kátia Sivieri

ABSTRACT: *The objective of the present study was to evaluate the effect of a synbiotic shake on the intestinal microbiota. To this purpose, a randomized, double-blind, placebo-controlled study was conducted on twenty volunteers. Ten individuals consumed daily 200 mL of a synbiotic shake containing 10^8 UFC/mL *Lactobacillus acidophilus* and *Bifidobacterium bifidum* and 2 g oligofructose (synbiotic group) while the placebo group drank daily the same amount of a placebo shake for thirty days. Stool samples were collected 15 days prior to the start of the experiment and at 10-day intervals after the beginning of shake intake. The composition of the intestinal microbiota was assessed by enumerating *Bifidobacterium* spp., *Lactobacillus* spp., *Clostridium* spp., *Bacteroides* spp. and *Enterococcus* spp. The results for the synbiotic group show a significant increase ($P<0.01$) in the populations of *Bifidobacterium* spp. and *Lactobacillus* spp., a reduction in the *Clostridium* spp. and *Bacteroides* spp. ($P<0.05$) counts, and no change in number of *Enterococcus* spp. cells. No significant changes were observed in the intestinal microbiota of the placebo group. The consumption of synbiotic Shake modulated the intestinal flora of the volunteers with an increase in the beneficial bacterial population and a reduction of undesirable microflora.*

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141-148 PREBIOTICS CONSUMPTION MODIFIES DIASTOLIC BLOOD PRESSURE, BUT DOES NOT AFFECT SERUM LIPIDS CONCENTRATION IN VOLUNTEERS WITH ISCHEMIC HEART DISEASE

E. Gómez-Reyes, A. Orea-Tejeda, L. Castillo-Martínez, L. Cassis-Nosthas and F. Vargas-Voráčková

ABSTRACT: *Background: Hypertension and dyslipidemia are two of the principal risk factors for ischemic heart disease. Prebiotics consumption has been shown to have beneficial effects on serum lipids concentration; however, the effect on blood pressure has not been fully investigated. The present study aimed to assess the effect of prebiotics consumption on blood pressure and serum lipids concentration in patients with ischemic heart disease (IHD). Method: A total of 47 volunteers with IHD were included in a randomized, double blind, placebo-controlled, parallel group study. Participants were randomly assigned to placebo group ($n=23$) or prebiotic group ($n=24$). Intervention consisted in consuming a bread roll enriched with inulin and oligofructose daily for 12 weeks. Serum lipids concentrations were assessed at the beginning and after 12 weeks of follow up. Blood pressure, dietary intake, body composition and compliance were measured biweekly during the study. Results: In the intervention group diastolic blood pressure and systolic blood pressure decreased by 8 mmHg ($p=0.05$) and 3 mmHg ($p=0.08$) respectively, compared with baseline values. No significant changes were observed on serum lipid concentrations in both groups after follow-up. Conclusion: Inulin and oligofructose can reduced blood pressure, but does not modify serum lipids concentration in patients with ischemic heart disease.*

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149-156 CHARACTERIZATION OF LACTIC ACID BACTERIA ISOLATED FROM OKARA FOR PROBIOTIC PROPERTIES

Vure Badarinath, Ponnala Raghavendra and Prakash M. Halami

ABSTRACT: *The aim of this study was to evaluate the Okara, as a source for isolation of probiotic lactic acid bacteria (LAB). We have selectively screened LAB from the Okara, based on their acid tolerance and bacteriocin production. The selected cultures were further evaluated in vitro for probiotic properties such as, survival at pH 2.0, 0.3 % Ox-bile, β -galactosidase activity, β -glucosidase, antibiotic susceptibility, antimicrobial activity against food-borne pathogens such as *Listeria sp.*, *E. coli*, *Bacillus cereus* *Staphylococcus aureus* and *Salmonella* etc. of the cultures were evaluated. Out of the 12 isolates selected, 2 isolates, OK2 and OK3 showed more than 50% survivability at pH 2 and pH 2.5 after 120 min of incubation and possessed bile tolerance ability. These two isolates had broad antibacterial spectrum, exhibited β -galactosidase (185 & 420 Miller units) and β -Glucosidase activities (2.2 & 2.8 U). These enzymatic activities were also observed in soya curd as a point of functional food formulation. This study indicates exploration of native isolate *Pediococcus pentosaceus* OK2 found in Okara, as a starter as well as a probiotic culture.*

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157-164 IN VITRO MODEL FOR ASSESSMENT OF THE HEALTH BENEFITS OF SOME MICROBIAL STRAINS

S. M. EL-Dieb, F. H. R. Abd Rabo, S. M. Badran, A. M. Abd El- Fattah and F. M. F. Elshaghabe

ABSTRACT: *In Vitro Cholesterol reducing ability, β -galactosidase, antioxidant, antitumor and antibacterial activity of *L. acidophilus* La-5, *L. casei* - 01, *L. helveticus* Lh. B 02, *B. bifidum* Bb-12, *K. lactis* NRRL Y- 8279 and *Sacch. cerevisiae* DSMZ 70 449 were investigated. Results obtained showed that all strains were able to reduce cholesterol and had β - galactosidase activity especially yeast strains and the viable form (free and microencapsulated) of all microbial stains had higher cholesterol reducing ability and β - galactosidase activity than nonviable form. However the nonviable form of all tested microorganisms had the highest antioxidant power compared with the others. The yeast strains had higher antioxidant activity than bacterial strains in the different forms. All strains in different forms exhibited antitumor activity by using potato disc assay. Antibacterial activity was observed in lactobacilli and *Bifidobacterium* strains against spoilage and pathogenic bacteria.*