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Food supplements with probiotics and berries for suppression of low grade inflammation in elderly: An experimental model

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The overall aim of the project is to treat low grade inflammation in the elderly with probiotics and berries. Based on a survey of a diet for elderly in Malmö that was shown to be far too low in protein and dietary fibers, vitamins, minerals and overloaded with fats and sugars, we have designed a special feed that mimics the default diet of the elderly for evaluation *in vivo*.

The study had 7 treatment groups, with 16 mice (C57BL/6NCrl) per group. All groups except the negative control were given the elderly-inspired feed, with or without supplements of blackcurrant, blackberry and/or probiotics. The animals were sacrificed at 2 (8 animals) and 4 weeks (8 animals). To establish a model corresponding to the elderly situation, antibiotics and E. coli were orally administered.The mice were constantly monitored, measuring body weights, food intake and at the time of sacrifice, samples were collected to analyze fat content in liver, the microbiota in colon, the profile of different polyphenols in the intestinal content and the populations of lymphocytes from the mesenteric lymph nodes (CD4+, CD8+, CD69+, CD25+, CCR9+, and fox P3+).

The results at termination of the study showed that the body weights, the spleen/body weight ratio and the population of activated CD4+ and CD8+ cells expressing homing to the gut as well as activated regulatory T cells were significantly higher in the treatment groups compared to the control.

In conclusion, by consuming berries and probiotics, the immune system as well as the body weight is affected indicating a possible treatment for the inflammation and malnutrition found in elderly. Additional samples are currently being analyzed to strengthen the hypothesis.

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