

Title: effect of peanut intake on obese the intestinal microbiota

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Abstract:

Inverse association between frequency of consumption of peanuts versus body mass index (BMI) and risk of obesity has been observed. The influence of the intestinal microbiota as a factor for weight control has been discussed in different studies. The density of bacteria phyla Firmicutes and Bacteroidetes, is inversely proportional in obese people. The objective of this study was to evaluate the effects of consumption of a reduced calorie diet with or without peanuts in the composition of the intestinal microbiota. Overweight (BMI > 27) men and aged 18-50 years were randomly assigned to three experimental groups: conventional peanuts (AC = 10), peanut rich in oleic fatty acid (AO = 10) and Control (CT = 10). Reduced calorie diet (-250 kcal / day) was prescribed, which included a daily portion of 56 g of roasted peanuts with skin (AC and AO) or not (CT). The dietary intervention lasted for four consecutive weeks. Fecal samples were collected in the first and last day for the quantification of bacteria of Firmicutes e Bacteroidetes groups by Fluorescent in situ Hybridization (FISH) technique. These samples were fixed (PFA 2% - final concentration), sonicated, centrifuged, filtered. The probe used to identify bacteria of the phylum Bacteroidetes was BAC303 (Bacteroidaceae, Prevotellaceae, Porphyromonadaceae families) and to identify phylum Firmicutes was LGC 354 (A, B and C). Bacterial density of Bacteroidetes group was significantly different in AO treatments (peanut + oleic acid) and CT (Control), the end of the dietary intervention ($2.7 \pm 2.3 \text{ cells } 10^9 \text{ g}^{-1}$ and $0.7 \pm 0.5 \text{ cells } 10^9 \text{ g}^{-1}$, respectively). There were no significant differences between the other treatments. The hypocaloric diet for overweight promoted the opposite trend in the density of bacteria Firmicutes and Bacteroidetes group in all treatments. This tendency has been to lower the average densities of Firmicutes and increase of Bacteroidetes.

Keywords: obesity, Firmicutes, Bacteroidetes

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