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*Analyzing the Effects of Dietary Supplement Consumption on Probiotic Growth*

The purpose of this investigation is to explore the effects of various supplements on probiotic microbes. This information is beneficial to people who are fighting the life-threatening disease, *Clostridium difficile*. I hypothesized that the bacteria growth would be comparable to the control for fish oil, vitamin B-12 and D-3. For the supplements zinc, vitamin C and E, I hypothesized that the growth would either be comparable to the control or have an increase. I hypothesized that metamucil would increase the growth of the probiotic and that the multi-vitamin would have a negative effect.

The experiment involved several steps. I first created broth stock cultures for the three probiotics. One hundred twenty Petri dishes were then divided in half and labeled: date, control side, trial number, probiotic, and supplement. Five trials were completed for each probiotic with each supplement. The diluted stock culture was transferred to a dish to create a lawn. Two holes were cut out for the supplements, and one hole was cut out on the other side for the control. The supplements were then added, and the dishes incubated. The bacteria growth was analyzed.

The data collected partially supported the original hypotheses. Bacteria growth was comparable to the control when fish oil, metamucil, and D-3 were added. Zinc, B-12, and the multi-vitamin all showed a decrease in growth. Vitamin C had mixed results. Vitamin E showed potential. These findings lead me to conclude that different supplements do have an effect on probiotic microbes.

This data shows that when taking probiotics, certain supplements should not be taken. More research needs to be completed in the area of bioremediation to find supplements that could enhance normal gut flora to fight off infections, such as *Clostridium difficile*. Expansion ideas include analyzing different concentrations of supplements or testing how various supplements affect the growth of *Clostridium difficile*.