The Effects of Hypochlorhydria on the Digestion of Lipids, Carbohydrates, Sugars and Proteins

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This study aims to understand how the increase in pH levels within the stomach, caused by a condition called Hypochlorhydria, contribute to a decrease in the ability to digest food and absorb proper amounts of nutrients. Limited research on this topic was found; semi-related sources mainly focusing on the effects of different conditions or diseases in correlation with hypochlorhydria. I used self collected data, obtained from measuring the mass of foods prior and post submersion into different concentrations of HCl, subtracting the average difference in mass from the control trials to determine the mass change at the end of each of the experiment's trials. Detailed research was conducted, allowing the identification and analysis of confounding variables including how HCl's affinity to water affects absorption in different concentrations, and how the lack of specific enzymes in the solutions impacts digestion and nutrient absorption. The experiment's results are inconclusive, though there are some important findings. Hydration heavily impacts the body's reaction to hypochlorhydria; the affinity of HCl to H2O causes more HCl absorption by food within the stomach, making proteins denature faster. Additionally, while carbohydrates break down in the small intestine, meaning that the chemical digestion occurring in the stomach should cause fewer results for the carbohydrates, the carbohydrates showed the most fluctuation. My data aids in seeing hydration's impact on one's ability to properly digest food and absorb proper amounts of nutrients, however it lacks the data to accurately analyze digestion rates, for HCl alone is not enough of a determining factor.

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