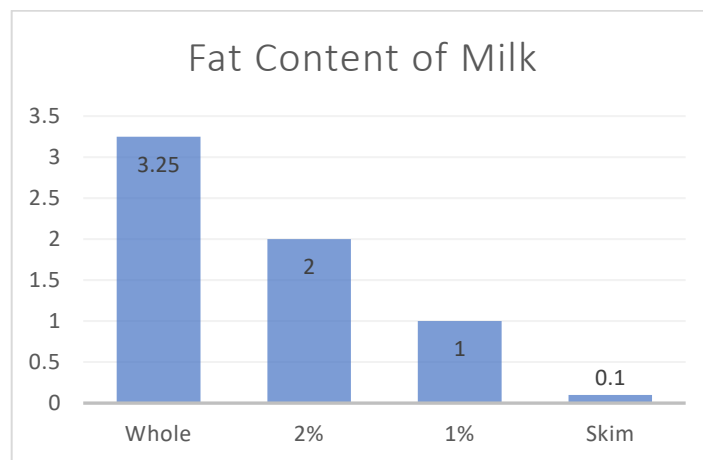


Mini Lab Report – Example

Abstract:

Cow's milk is fed to many children as an important source of protein and nutrients. However, at age 2, many dieticians recommend that children switch from whole milk to milk with a lower fat content with the assumption that it is equally beneficial. To test this, casein (cow milk protein) was extracted from samples of milk with different fat contents and then measured. It was found that 1% and fat-free milk have significantly less casein than whole milk and 2%. From these results, it is recommended that parents make sure their children are receiving enough protein from sources other than milk if they switch to milk with lower fat contents.

Figure 1: Fat Content of Milk



[1]

Hypothesis:

Because milk casein is not stored in milkfat but in the curds, it can be hypothesized that milk of different milkfat concentrations will have similar casein contents.

Objective:

This experiment will measure the amount of casein obtained from samples of milk with different milkfat concentrations. Once measured, the amount of casein from each sample will be compared to determine if similar amounts of casein are found in each sample.

Materials:

- 250 ml 1% Milkfat Milk
- 250 ml 2% Milkfat Milk
- 250 ml Fat-free Milk
- 250 ml Whole Milk
- 500 ml Measuring Cup
- 80 ml White vinegar
- A Gram Scale
- A 100 ml Plastic Container
- A 1000 ml Saucepan
- A Spoon
- A Stovetop
- A Strainer
- Thermometer
- A Stopwatch

Results:

The following amounts of casein were extracted from four 250 ml samples of milk with different milkfat concentrations. From the sample containing 250 ml of whole milk 40.02 grams of casein were extracted. From the sample containing 250 ml of 2% milkfat milk, 43.64 grams were extracted. From the sample containing 250 ml of 1% milkfat milk, 27.06 grams of casein were extracted. From sample containing 250ml of fat free milk, 25.95 grams of casein were extracted. These results are presented in Table 1 below.

Table 1: Milk Casein

	Volume of Milk at 5 °C (ml)	Mass of Casein (g)
Whole Milk	250	40.02
2% Milk	250	43.64
1 % Milk	250	27.06
Skim Milk	250	25.95

Analysis:

Although casein is stored in milk curds and not in the milkfat, the results of this experiment show that the lower the milkfat content of milk, the lower the amount of casein. Thus, my hypothesis was not supported. The results of these findings could have wide-ranging implications on nutritional recommendations for children, and the milk processing industry. It is possible that there were things in the experiment that were not properly controlled. For instance, the milk was not agitated before being poured from the bottle. However, it is understood that unless milk is mixed with an acid, casein protein does not settle to the bottom of a container or milk. Instead, casein is dispersed throughout a container of milk. There may be other unknown factors that influenced the results of this experiment, but as is, the results were clear: the lower the milkfat, the lower the casein.