**Analysis of the calories and the fat: Cereal Dataset**

Information on the distribution of various groups of nutrients among 77 commonly available breakfast cereals was obtained from the *statistical graphics exposition* in 1993. The number of calories and grams of fat, was recorded.

A plot of the relationship between the caloric content/serving and the fat (Figure 1) showed a linear relationship. The estimated relationship (R-Square= 0.2084; p < .0001) is:

**Calories = 95.13 (SE 3.14) + 9.81 (SE 2.21)\*Fat**

Therefore, for every additional gram of fat, the calorie content is estimated to increase by 9.81 calories, and this could scale from 5.4 to 14.2 calories (95% CI for the slope) based on the different collected cereal sample. The huge differences due to other nutrients’ affect (omitted variable bias). The standard error of slope is 2.21, p-value < 0.0001. We can say that there is a positive relationship between the calories and fat and the relationship consistent with the stand value of 9 calories of fat.

An estimate of the mean caloric content/serving for a cereal with 4 grams of fat is 134.376 calories. And for the uncertainty in **the MEAN caloric content of all cereals** with 4 grams of fat, 95% confidence interval is between 120.51 and 148.20 calories. And for the range of **INDIVIDUAL cereals** with 4 grams of fat, 95% prediction interval is between 93.37 and 175.34 calories.

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| C:\Users\Kun\Desktop\340\R\Assignment 6\Cereal\assign06-part01-calfat.png  Figure 1. A plot of the calories against fat(g). | Coef SE CI.2.5.. CI.97.5..  (Intercept) 95.13 3.14 88.87 101.39  fat 9.81 2.21 5.41 14.20 |