

November 2, 2010
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POSTGRADUATE COURSE IN
LINEAR AND LOGISTIC REGRESSION
Day 2
Afternoon exercises:

Part A

Back to the lung function data (`lung.dta` and `lung.sav`).

We will consider the multiple regression of PEFR on height and sex.

We will consider sex as a **categorical variable**.

Fit model with an interaction between sex and height

1. What is the estimated difference in the slopes (with CI) for men and women?
Are the slopes statistical significant different?
You also made such a comparison yesterday morning.
Compare this with what you just found.

2. What is the estimated difference (with CI) in expected PEFR for a man and a woman both 170 cm high?
Are this difference statistical significant?
You also made such a comparison yesterday morning.
Compare this with what you just found.

Part B

Here we look at data from the lecture today (`fram200.dta` and `fram200.sav`).

$$\ln(sbp) = \beta_0 + \beta_1 \cdot \text{age} + \beta_2 \cdot \text{woman} + \beta_3 \cdot \ln(bmi) + E$$

3. Fit a model with `sex` as a categorical variable and an interaction between `sex` and `age`, using **men** as reference for `sex`.
Spend some time trying to understand the estimates.
4. Fit the same model but now with **women** as reference.
Spend some time trying to understand the estimates.
5. Combine your findings into a conclusion on whether or not there is interaction (effect modification) between `sex` and `age`.