

Design of Experiments question

During world war II scientists tried to study the effects of the environment on soldiers. Among the effects they tested were cold temperatures and a soldiers performance. An outgrowth of this was a study of businessmen aged 47 to 57 conducted in Minneapolis from 1947 to 1967. A factor in this study was a reaction to a little used test known as the cold pressor test. It was found to be a stronger predictor of coronary heart disease. The goal of this project is to determine whether females respond differently than males.

Data collection:

- Make two groups, One group of males and one group of females.
- Choose a person at random and do the following:
 - Measure their pulse
 - after immersing their left hand in ice water for one minute, measure the pulse again
- For each individual, you have a pair of measurements (before and after. They will stand for the levels of a factor (treatment 1 and treatment 2). In addition to this we have gender.
- What model to use? We can use gender as a block and within gender each subject in a block also. Write the model (this model is called a split plot design)