

Case 2: Exercises on Blood Pressures

This case study examines the effect of a 12-week exercise program on blood pressure. A group of 25 volunteers participate in the study. Table 5.3 shows the blood pressures measured before and after the program. Does the 12-week exercise program significantly reduce blood pressure?

TABLE 5.3: Blood Pressure Before and After the Exercise Program ([download data](#)).

Patient ID	BP Before	BP After
1	139	120
2	143	143
3	161	136
4	146	125
5	146	146
6	162	139
7	150	132
8	132	143
9	138	143
10	141	142
11	157	141
12	149	140
13	149	134
14	146	132
15	139	132
16	163	129
17	150	133
18	125	124
19	152	155
20	140	146
21	134	125
22	143	131
23	135	131
24	138	142
25	139	134

Initial Questions

1. What are the research objectives?
2. What are the statistical questions?
3. What is the response variable, and what is the data type of the response variable?
4. What are the explanatory variables of interest?
5. Are there covariates?
6. What is the population of interest?
7. What is the subject, and what is the number of distinct subjects?
8. Are there subject-level data?
9. Are response variables dependent (repeated measures / clustered subjects)?
10. Are the subjects selected randomly?
11. Are the subjects randomly assigned to different groups?

Initial Thoughts