Reading

- BPS Chapter 20, 21

Exercises

BPS - Check your skills

Chapter 20 # 25,26 (answers: b,c)

Chapter 21 # 18-21, 24, 25 (answers c,a,b,b,c,b*)
* I disagree with the book's answer on this one.

You do not need to turn these in.

BPS Chapter 20 # 11, 12, 31, 35, 46, 48, 49, 51, 53

BPS Chapter 21 # 1-4, 37, 39, 40, 50

For BPS problems, be sure you state hypotheses and conclusions when appropriate.

Cocaine Rats Data in these problems is from an experiment by Mark M. Knuepfer, PhD, a SLU professor in the Department of Pharmacological and Physiological Science. Rats were treated with cocaine (5 mg/kg I.V.), and variables measuring cardiac response were recorded.

Get the file `cocaine-rats.rda`, which contains data on 78 rats. The variables in this file are:

rat	An ID for each rat
mrvr	Classification as mixed responder or vascular responder
ap.control	Pre-treatment arterial pressure (blood pressure).
ap.peak	Peak post-treatment arterial pressure.
hr.control	Pre-treatment heart rate
hr.peak	Peak post-treatment heart rate
sv.peak	Peak heart stroke volume, given as % change from control.
co.peak	Peak cardiac output, given as % change from control.
svr.peak	Peak systemic vascular resistance, as % change from control.

1. Did treatment with cocaine affect arterial pressure? Make a side-by-side boxplot of arterial pressure before (ap.control) and after (ap.peak) treatment and print it. State a hypothesis test that cocaine affected arterial pressure. Choose an appropriate test and carry it out. State your conclusions and report a 95% confidence interval for the change in arterial pressure.
2. Repeat question 1, but using heart rate.
3. Is there a difference in response between mixed responder rats and vascular responder rats? State and carry out a hypothesis test that peak cardiac output differs between the two groups.
4. Repeat question 3 for peak heart stroke volume.
5. Repeat question 3 for the change in heart rate (hr.peak - hr.control).