Section 9.3 - Matched Pairs

When two data sets consist of dependent samples that are matched pairs, the techniques of Section 9.2 should not be used.

There are no exact procedures for dealing with dependent samples, but we will use the t-test approximation methods described on page 443.

Procedure:

1. Verify that the requirements described on page 468 are satisfied.
2. Find the difference d for each matched pair.
3. Find the mean $\bar{d}$ and the standard deviation s_d of the differences.
4. Use the t-test techniques from Chapters 7 & 8 to find a confidence interval estimate for $\bar{d}$ or to test a hypothesis concerning $\bar{d}$.

Example

As part of the National Health and Nutrition Examination Survey, the Department of Health and Human Services obtained self-reported heights and measured heights for males aged 12-16. The measurements are in inches.

Reported	68	71	63	70	71	60	65	64	54	63	66	72
Measured	67.9	69.9	64.9	68.3	70.3	60.6	64.5	67	55.6	74.2	65.0	70.8

What do these data suggest about young males' abilities to self-report?