## AP Statistics Observational Study versus Experimental Study

Read each brief report of statistical research and identify:

a) Whether it was an observational study or an experiment.

- If it was an observational study, identify (if possible)
- b) The subjects studied, and how they were selected.
- c) Parameter of interest.
- d) The nature and scope of the conclusion that study can reach.
- If it was an experiment, identify (if possible)
- b) The subjects studied.
- c) The factor(s) in the experiment, and the number of levels for each.
- d) The number of treatments.
- e) The response variable measured.
- f) The design (completely randomized, blocked, or matched).
- g) Whether it was blind (or double-blind).
- h) The nature and scope of the conclusion the experiment can reach.

1. Over a 4-month period, among 30 people with bipolar disorder, patients who were given a high dose (10g/day) of omega-3 fats from fish oil improved more than those given a placebo. (Archives of General Psychiatry, 1999)

2. In a test of roughly 200 men and women, those with moderately high blood pressure (averaging 164/89 mm Hg) did worse on tests of memory and reaction time than those with normal blood pressure. (Hypertension, 2000)

3. Some gardeners prefer to use nonchemical methods to control insect pests in their gardens. Researchers have designed two kinds of traps, and want to know which design will be more effective. They randomly choose 10 locations in a large garden and place one of each kind of trap at each location. After a week they count the number of bugs in each trap.

4. In 2002 the journal Science reported that a study of women in Finland indicated that having sons shortened the life spans of mothers by 34 weeks per son, but that daughters helped lengthen the mothers' lives. The data came from the church records from the period 1640 to 1870.

5. The May 4, 2000 issue of Science News reported that, contrary to popular belief, depressed individuals cry no more often in response to sad situations than non-depressed people. Researchers studied 23 men and 48 women with major depression, and 9 men and 24 women with no depression. They showed the subjects a sad film about a boy whose father has died, noting whether or not the subjects cried. Women cried more often than men, but there were no significant differences between the depressed and non-depressed groups.

6. Athletes who had suffered hamstring injuries were randomly assigned to one of two exercise programs. Those who engaged in static stretching returned to sports activity in a mean of 37.4 days (sd = 27.6 days). Those assigned to a program of agility and trunk stabilization exercises returned to sports in a mean of 22.2 days (sd = 8.3 days). (Journal of Orthopaedic & Sports Physical Therapy, 2004)