

## The Impact of Practice on Serving Accuracy in Tennis

### Description:

College A is an art school and does not have any organized sports teams. College A even goes so far as to have a t-shirt inscribed with, "College A Tennis" on the front of the t-shirt. On the back of the t-shirt it says, "Still Undefeated." The t-shirt is sold in the school bookstore. Inspired by the t-shirt, a group of 20 College A students decide to form a tennis team. They asked a tennis coach to coach the team. This study compares student performance of a new team of tennis players on their ability to serve a tennis ball accurately into the service court on a tennis court prior to taking serving lessons and after taking serving lessons.

### Methods:

The newly formed College A tennis team was given a pre-test by the tennis coach to see if the team members could serve the tennis ball accurately into the service court. The tennis coach gave each team member 10 chances to serve the ball into the service court. The coach recorded the results. After the pre-test, the tennis coach demonstrated how to accurately serve the tennis ball in the service court. Each of the tennis team members practiced serving into the service court with the coach assisting and coaching during the practice. The practice lasted five minutes per player. After the practice, the coach gave each player 10 chances to serve the tennis ball in the service court as a post-test. The coach recorded the results of the post-test.

### The Null and Alternative Hypothesis:

The null hypothesis for this study states that there will be no significant difference between the means of the pre-test and post-test results of the number of tennis serves that are accurately placed in the service court.

$$H_0: \mu_D = 0$$

$$H_1: \mu_D > 0$$

### Results:

Since the data from the Pre-Practice test were logically tied to the Post-Practice test, a dependent t-test was performed. The tables below indicate the results of the dependent t-test. The groups were divided into Pre-Practice and Post-Practice. The mean for the Pre-Practice test was 2.65 (out of a possible 10.00) with a standard deviation of 2.412. The mean for the Post-Practice test was 7.00 with a standard deviation of 2.152. The mean difference between the Pre-Practice and the Post-Practice scores was 4.350, which was statistically significant with  $t(.05, 19) = 5.816$ ,  $p = .000$ .

### Discussion:

The results showed the Post-Practice scores (7.00) to be significantly higher after the practice session, compare to the Pre-Practice scores (2.65). Therefore it appears that

the practice session with the coach had a positive effect on the tennis player's serving accuracy.

**Paired Samples Statistics**

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Post-Practice	7.00	20	2.152	.481
	Pre-Practice	2.65	20	2.412	.539

**Paired Samples Correlations**

		N	Correlation	Sig.
Pair 1	Post-Practice & Pre-Practice	20	-.071	.766

**Paired Samples Test**

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Post-Practice Pre-Practice	4.350	3.345	.748	2.785	5.915	5.816	19	.000

**Case Processing Summary<sup>a</sup>**

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Post-Practice	20	50.0%	20	50.0%	40	100.0%
Pre-Practice	20	50.0%	20	50.0%	40	100.0%

a. Limited to first 100 cases.

**Case Summaries<sup>a</sup>**

	Post-Practice	Pre-Practice
1	5	2
2	7	1
3	8	0
4	9	0
5	10	2
6	9	3
7	8	0
8	5	2
9	7	4
10	9	1
11	10	3
12	4	0
13	8	6
14	9	5
15	7	4
16	5	2
17	4	3
18	5	0
19	3	8
20	8	7
Total N	20	20

a. Limited to first 100 cases.