Examples of Reports of Statistical Data

Example of a Correlation Coefficient Report

Relationships between level of moral reasoning, and hostility and altruism scores for the medium-contact sport group were measured. The null hypothesis was that there will be no relationship between moral reasoning and hostility and altruism scores.

TABLE 1

CORRELATION COEFFICIENTS AMONG THE FIVE DEPENDENT VARIABLES FOR THE MEDIUM-CONTACT GROUP

	HOSTL	LIFE	SPORT	TOTAL	ALTRF
HOSTL	1.0000 0.0000				
LIFE	-0.4272 0.0420	1.0000 0.0000			
SPORT	-0.5266 0.0098**	0.6373 0.0011**	1.0000 0.0000		
TOTAL	-0.5247 0.0444*	0.9129 0.0001***	0.8962 0.0001***	1.0000 0.0000	
ALTRF	-0.1260 0.5667	-.1727 0.4306	-.1477 0.5012	0.0911 0.6790	1.0000 0.0000

* $p<.05$
** $p<.001$
***$p<.0005$

As depicted in Table 1, the medium-contact sport group's *total*, *life*, and *sport* moral reasoning scores indicates a moderate inverse relationship with the group's hostility scores, $r = -0.52$ ($p<.05$), $r = -0.42$ ($p<.05$), and $r = -0.52$ ($p<.05$), respectively. Thus, the null-hypothesis stating that there is no relationship between moral reasoning and hostility levels was rejected. The positive

relationship between total moral reasoning and altruism (r = 0.09, p>.05), and the negative relationship between altruism and hostility (r = -0.13, p>.05) were nonsignificant for the medium-contact athletes. Thus, the null-hypothesis that predicted no relationships between moral reasoning and altruism, and/or no relationship between altruism and hostility, was accepted for the medium-contact group.

Example of a *t*-Test Report

The phenomenon of "bracketed morality" or "game reasoning" displayed by athletes participating in low-contact, medium contact and non-contact was tested. The null hypothesis was that all of the studied groups will display equal mean life and sport scores. Since the independent variable (athletic status) has only two dependent scores (life and sport moral reasoning) a *t*-test for dependent samples seemed appropriate.

TABLE 2

A COMPARISON OF THE LIFE MEAN SCORES
WITH THE SPORT MEAN SCORES FOR ALL GROUPS

Life = (L) Sport = (S)		Mean Score	STD Error of Mean	Dependent *t*
Low-Contact Athletes	(L)	11.1012		
	(S)	9.2381	0.4655	4.00**
Med-Contact Athletes	(L)	11.2717		
	(S)	9.5109	0.4198	4.19***
Non-Contact Athletes	(L)	11.4342		
	(S)	8.6711	0.4003	4.40***

** p<.001
***p<.0005

In table 2, the dependent *t*-test values for the low-contact, medium contact, and nonathletes sport and life scores were, 4.00, 4.19, and 4.40 with actual probabilities of occurrence of .0007, .0004, and .0003 respectively. Given a critical level for rejection at .05, the null hypothesis of no differences between the mean scores of life and sport moral reasoning for all groups was not accepted.

Comparing the moral reasoning scores among the athlete and nonathlete groups it was hypothesized that (1) athletes participating in low-contact sports (volleyball & softball) are similar to nonathletes in moral reasoning, and (2) both low-contact sport participants and nonathletes morally reason at a significantly higher level when compared to athletes competing in team sports that involve medium-contact (field hockey and basketball). To test the null-hypothesis that there are no differences in the three groups' *life* and *sport* moral reasoning mean scores, two one-way Analyses of Variance (ANOVAs) were used (see Table 3).

Examples of One-Way Analysis of Variance Reports

TABLE 3

ONE-WAY ANALYSIS OF VARIANCE FOR LIFE MORAL REASONING OF MEDIUM-CONTACT ATHLETES, LOW-CONTACT ATHLETES, AND NONATHLETES

Source of Variance Dep. Var = LIFE	*df*	Sum of Squares	Mean Squares	*F*	Exact *P*
Full Model	2	7.9061	3.9530	0.82	0.444
Within Subjects	60	288.7074	4.8117		
Total	62	296.6135			

The *F*-ratio for the model presented in Table 3 resulted in an *F*-value of .82 with an associated probability of occurrence of 0.444. At an alpha level of 0.05 the *F* is considered nonsignificant. Therefore, the null hypothesis of no differences in levels of *life* moral reasoning among the three groups is accepted.

Regarding the question of levels of altruism among the studied groups, the research questions were: (1) Do the means of the three separate altruism scores differ from one another? And (2) Are there differences in the various means of the altruism scores across the three studied groups?

The null hypotheses were that: (1) the means of the three dimensions (friend, stranger, and antagonist) were equal, and that (2) the means of the athlete and the nonathlete groups for the altruism scores on the three dimensions were equal.

TABLE 4

ONE-WAY ANALYSIS OF VARIANCE FOR LIFE MORAL REASONING OF MEDIUM-CONTACT ATHLETES, LOW-CONTACT ATHLETES, AND NONATHLETES

Source of Variance Dep. Var = ALTRUISM	Sum of Squares	*df*	Mean Squares	*F*	Exact *P*
Full Model	14.673	4	3.668	37.189	.001
TYPE of ALTR	14.430	2	7.215	73.149	.001
ATHLETIC STATUS	.243	2	.121	1.230	.295
2-way Interactions TYPE by STATUS	.124	4	.031	.313	.869
Within Subjects	17.755	180	.099		
Total	32.772	188	.174		

The analyses presented in Table 4 reveal a significant difference (F = 37.189, p<.001) among the means of the three dimensions of altruism. Further inspection of the model in Table 4, however, reveals that athletic status did not account for a statistically significant portion of the variability in the altruism scores in the friend, stranger, and or antagonist dimensions. Since the test for interactions is non-significant one can conclude that while the altruism scores are significantly different for the three levels of altruism, the medium-contact athletes, the low-contact athletes, and the nonathletes are not different.

Example of a Duncan's Multiple Range Test Report

Following the significant difference (F = 37.189, p<.001) among the means of the three dimensions of altruism a Duncan's Multiple Range Test for the altruism scores by all of the subjects combined for "friend," "stranger," and "antagonist" was performed. As shown in Table 5, means with different grouping letters are significantly different from each other. As hypothesized, the Duncan's Multiple Range Test revealed that while athletic status showed no significant differences among the altruism scores, the sample as a whole is more altruistic toward a friend than toward either a stranger and/or antagonist. In addition, the sample as a whole is more altruistic toward a stranger than toward an antagonist.

TABLE 5

DUNCAN'S MULTIPLE RANGE TEST FOR THE THREE TYPES OF ALTRUISM FOR THE TOTAL SAMPLE

Dependent Variable = ALT	Mean	Standard Deviation	Grouping	N
Altruism				
Friend	0.33	0.3476	A	63
Stranger	0.02	0.1587	B	63
Antagonist	-0.34	0.3471	C	63

* Means with dissimilar grouping letters are significantly different.