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Stress, coping, and injuries in male and female high school basketball players

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**Stress, coping, and injuries in male and female high school
basketball players**

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San Jose State University, 1993

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STRESS, COPING, AND INJURIES
IN MALE AND FEMALE HIGH SCHOOL BASKETBALL PLAYERS

A Thesis
Presented to
the Faculty of the Department of Psychology
San Jose State University

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts

by
Steven Page Rider
May, 1993

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Stress, Coping, and Injuries in Male and Female High School Basketball Players

Steven Page Rider

San Jose State University

Running Head: STRESS AND INJURIES

Abstract

Past research has identified a positive relationship between life event stress and football injuries, but research in other sports has yielded ambiguous results. Some previous studies have also identified coping skills and social support as variables that may modify the stress-injury relationship. The present investigation examined the relationships among life event stress, coping, and injuries in male and female high school basketball players. Stressful life events, coping skills, and social support were assessed via questionnaire during the latter part of the basketball season, and coaches collected injury data throughout the entire season. The results did not support the hypothesis that life event stress would be significantly related to injuries, and neither coping skills nor social support modified the stress-injury relationship. One mechanism that may explain these results, the narrowing of the visual field that occurs under stress, is discussed, as are recommendations for future research.

STRESS, COPING, AND INJURIES IN

MALE AND FEMALE HIGH SCHOOL BASKETBALL PLAYERS

Personality and Athletic Injuries:

It has been estimated that in the United States, three to five million injuries occur annually in sports and recreation (Kraus & Conroy, 1984). Further, the incidence of athletic injuries seems to be rising (Bergandi, 1985). Collectively, these observations suggest that inquiry into the psychological factors that may be involved in athletic injuries is important.

Interest in this area of research started to emerge in the mid-1960's, and most of the work done during the first decade of this effort focused on the investigation of personality differences between injured and non-injured athletes. Studies have produced mixed results. For example, in studies that involved college football players (Govern & Koppenhaver, 1965), high school football players (Brown, 1971), female athletes participating in various team sports (Abadie, 1976), and female college basketball players (Young & Cohen, 1979) no differences were observed in personality of injured and non-injured athletes. Other investigators, however, reported differences between injured and non-injured groups. For example, Jackson, Jarret, Bailey, Kausek, Swanson, and Powell (1978) administered the Sixteen Personality Factor Questionnaire (Cattell, Eber, & Tatsuoka, 1970) to 110 high school football players and found that Factor I of this scale (i.e. tough-minded vs. tender-minded) discriminated between athletes who were subsequently injured and those who were not. Specifically, they found that athletes who were tough-minded were less likely to be injured than tender-minded athletes. In a subsequent study that used the same questionnaire, Valiant (1981) confirmed Jackson et al.'s results by demonstrating that male long-distance runners who were tender-minded were more likely to be injured than their tough-minded counterparts. In a related study, Young and Cohen (1981), observed that female high school basketball players with higher scores on the Tennessee Self-

Concept Scale were more likely to suffer injuries than those with lower scores. To explain these data, they hypothesized that self-confident athletes might take more risks, and thus were more apt to expose themselves to injury. Finally, in a study of Italian national athletes, Lavarda (1975) reported that impulsivity, aggression, and guilt were personality traits that positively correlated with the incidence of injury across many different sports.

Stress and Athletic Injuries:

To some extent, the personality variables mentioned above could be perceived as related to stress management. Perhaps with this in mind, and because of the equivocal results of research on personality traits and injuries, research in this area has most recently focused on stress and stress management as factors in athletic injuries.

Bramwell, Masuda, Wagner, and Holmes (1975) modified the Holmes and Rahe (1967) Social Readjustment Rating Scale (SRRS) to better fit an athletic population and named this revised instrument the Social and Athletic Readjustment Rating Scale (SARRS).

Using the SARRS as their measure of exposure to stressful experience, they observed that college football players who reported high life stress experience were injured more often than those who reported low levels of life stress. Subsequently, Cryan and Alles (1983) replicated these results with a different group of college football players. Using a similar scale, Coddington and Troxell (1980) found that high school football players who had experienced more family events and more object loss events (i.e. parental death, parental divorce) were at greater risk for injury.

A related study (Passer & Seese, 1983), which also involved football players, is noteworthy for two contributions that it makes to the stress-injury literature. First, Passer and Seese developed a new measure of life stress, and second, they expanded the scope of this relationship by investigating the role of certain moderator variables that might increase understanding of the stress-injury relationship. Passer and Seese noted that the SARRS is of limited value in that it does not distinguish between positive and

negative life events, thus, they modified an existing scale, the Life Experiences Survey (Sarason, Johnson, & Siegel, 1978) to better suit athletes. They used this new instrument, the Athletic Life Experiences Survey (ALES), together with three moderator variables (i.e., trait anxiety, competitive trait anxiety and locus of control), to investigate the association between these variables and athletic injury. Results indicated that only negative life events were related to an increase in athletic injuries and that the three moderator variables had no influence on the relationship between stressful experience and injury.

While Passer and Seese's moderator variables were not related to the stressful experience-injury relationship, a more recent study of high school athletes competing in a variety of sports (Smith, Smoll, & Ptacek, 1990) demonstrated no relationship between life events and the occurrence of injuries unless the moderator variables of social support and coping skills were taken into account. In this study, Smith and his colleagues measured coping skills with the Athletic Coping Skills Inventory (Smith, Smoll, & Schutz, 1988), an instrument designed to assess a variety of coping skills within a sport context. Social support was measured by adapting an existing scale (Cauce, Felner, & Primavera, 1982) for use with athletes. Smith et al.'s social support scale was designed to measure the subjective appraisals of individual and group components of adolescents' social support systems (in administering this scale, items for assistant coach, trainer, team physician, and athletic religious organizations were added so that these athletes indicated on a five-point scale how helpful each individual or group had been in providing both emotional support and caring, and help and guidance). Using these scales, they noted that for athletes who scored low on the Athletic Coping Skills Inventory, life event stress accounted for six percent of the injury variance, and for athletes who scored low in both coping skills and social support, life event stress accounted for 30% of the injury variance.

The Generalizability of the Stress-Athletic Injuries Relationship and Sample Size:

While it is clear that the stress-injury relationship may hold for football players, studies of non-football athletes have yielded more ambiguous results. For example, Williams, Tonymon, and Wadsworth (1986) found no difference in injury occurrence between female collegiate volleyball players scoring high or low on a measure of stressful life events. Similar results were reported for basketball and cross-country athletes (Williams, Haggert, Tonymon, & Wadsworth, 1986), although here it should be noted that the investigators indicate that these nonsignificant results may have been a consequence of the small sample that they used.

In contrast, two studies that involved non-football players noted a positive relationship between stressful life events and injury. Lysens, Auweele, and Ostyn (1986) found that among physical education students participating in a variety of sports (not including football), higher life stress was associated with injury. In addition, in a study of elite gymnasts, Kerr and Minden (1988) reported that gymnasts who reported higher life stress sustained more injuries than those who scored low in life stress.

One reason for the conflicting results of these studies might be the nature of the sports themselves. That is, it is possible that stress can be demonstrated as a factor in athletic injury only in sports with higher injury rates, or put differently, in sports where there is sufficient variance in the injury variable to achieve adequate measurement. In this regard, data obtained from the National Athletic Injury/Illness Reporting System (NAIRS) indicates that 25% of college football players miss at least seven days due to injury during a season and that 28.4% of female gymnasts miss at least seven days of participation due to injury. In the studies discussed here, it has been noted that the stress levels of football players and gymnasts were consistently and positively related to injury occurrence. Further, in the one study using an adequate sample size in which no stress-injury relationship was demonstrated, the subjects were female collegiate volleyball players, who have an injury rate of only 10.9% according to

the NAIRS data. It seems important, therefore, to consider the nature of the sport and its incidence of injury in designing research of this kind. Thus, in designing this study, it was noted that NAIRS data indicate that the percentage of basketball players who miss seven or more days of participation due to injury is 20.7% for men and 20.3% for women. That is, these injury rates for basketball players (i.e., the group selected for this study) are closer to those of football players and gymnasts than those of volleyball players and should provide for adequate measurement of injury.

The Measurement of Life Stress in Athletes:

An issue that has emerged in this area of research involves the instruments used to measure life event stress in athletes. The original life event scale, the Social Readjustment Rating Scale (Holmes & Rahe, 1967), was modified for use with athletes and this questionnaire, the Social and Athletic Readjustment Rating Scale (Bramwell, et al., 1975), has been used most frequently in the study of athletic injuries. More recently Sarason et al., (1978) developed the Life Experiences Survey (LES) to distinguish between positive and negative life events, i.e., a distinction that is not made in either the SRRS or the SARRS.

As with the SRRS, the LES was subsequently modified for use with athletes by Passer and Seese (1983). This scale, the Athletic Life Experiences Survey, yields three different scores, i.e., one each for negative events, positive events, and a global score. Further, in responding to the items of this scale, the individual indicates which experiences were negative, which were positive, and is asked to rate the magnitude of impact that each of these events had on his or her life.

In the only previous study to use both the ALES and the SARRS (Williams, et al., 1986), a multiple regression analysis revealed no significant differences among the three ALES scores and the SARRS total score, although the ALES negative score tended to be the best predictor of injury. However, these results may be of questionable value because, as noted, Williams and her colleagues did not observe a reliable relationship

between injuries and any of the life event scores. Thus, the relative predictive value of these alternative methods of measuring life stress in athletes remains an open question and a purpose of this study is a comparison of these instruments in the prediction of injury in both male and female basketball players.

Purpose of this Research:

The purpose of this research is to measure the relative contributions of life event stress, coping skills, and social support to the prediction of injuries in male and female high school basketball players. The study design permits a comparison of the relative effectiveness of two alternative measures of life event stress i.e., the SARRS total score and the ALES global, negative, and positive scores, as predictors of athletic injuries.

Method

Subjects

The subjects, drawn from eight local high schools, were 35 male and 32 female varsity basketball players ranging in age from 15-18 years ($M = 16.62$, $SD = .89$). Male subjects ranged in age from 15-18 years ($M = 16.91$, $SD = .78$), as did females ($M = 16.31$, $SD = .92$). All subjects voluntarily agreed to participate in this study, and those under 18 obtained parental consent as well.

Measures

Life Event Stress: Life events were assessed using the Social and Athletic Readjustment Rating Scale (SARRS) and the Athletic Life Experiences Survey (ALES), which have been utilized in similar studies. The SARRS requires respondents to check any of 57 events experienced during the past year. From these responses a total score is computed by summing the pre-determined weighted values, derived from an administration of the scale to 79 college varsity football players, for all of the events that were checked. The original Social Readjustment Rating Scale (SRRS) was developed using a sample of 394 male and female subjects comprising a variety of age, ethnic, and religious groups. When the rank order of the of the 37 common items in the SRRS and SARRS were

compared, a Spearman's rho of .843 ($p < .001$) was obtained (Bramwell et al., 1975). This indicates a high agreement between the college football players and the original general sample in terms of how much readjustment is required to adapt to these events. No data is available on the test-retest reliability of the SARRS.

In completing the ALES, which was adapted for use with athletes from the Life Experiences Survey (LES), each respondent is asked to indicate whether or not he or she had experienced, during the past year, each of 70 life events listed. In the development of the ALES, 19 items were added to the LES. These 19 items were based upon those added to the SRRS by Bramwell et al., in their development of the SARRS. In marking these 70 events, the respondent is asked to rate, on a scale that ranges from negative three to positive three, the valence and impact of each event that they had experienced. Thus, a rating of negative three would indicate that the experienced event had an extremely negative impact on the respondent, a rating of positive one would indicate a slightly positive impact, and a rating of zero would indicate that the experienced event had no positive or negative impact. The ALES positive score is computed by summing all ratings for those items given a positive valence, and the ALES negative score is computed by summing all of the values for items given a negative valence. Finally, the ALES total score is derived by summing all positive and negative scores. Although no validity or reliability data is available for the ALES, these are well-documented for the LES. Based on a sample of 174 male and 171 female college undergraduates, no sex differences exist on any of the three LES scores, i.e., positive, negative, and total (Sarason et al., 1978). Two test-retest reliability studies have been conducted using rather small samples of 34 and 58 college undergraduates (Sarason et al., 1978). Subjects completed the LES twice within five to six weeks. These two investigations yielded test-retest correlations of .19 and .53 ($p < .001$) for the positive score, .56 ($p < .001$) and .88 ($p < .001$) for the negative score, and .63 ($p < .001$) and .64 ($p < .001$) for the total score. These correlations may underestimate the reliability of this measure for two

reasons. First, the sample size in both reliability studies was small, and second, over a five to six week period, the life events experienced during the past year may change substantially. Finally, correlations between social desirability and LES positive, negative, and total scores were $-.05$, $.05$, and $.01$, respectively, all statistically insignificant (Sarason et al., 1978).

Coping: Coping skills were measured using the Athletic Coping Skills Inventory. This questionnaire is comprised of 43 statements (e.g., "I play relaxed even under intense pressure") and respondents are asked to rate on a scale ranging from one to four how frequently they experience each item (i.e. 1 = almost never; 2 = sometimes; 3 = often; 4 = almost always). A total score for this instrument is derived by summing the ratings of all of these items. Reliability testing (Smith, et al., 1990) on a sample of high school athletes, reveals a test-retest correlation coefficient of $.88$ for this scale over a one-week interval. This measure also exhibits high internal consistency (Cronbach's alpha = $.90$).

Social Support: Social support was measured using the modified version (Smith, et al., 1990) of the scale developed by Cauce et al. (1982). Athletes rated on a scale ranging from one to five (1 = not at all helpful; 3 = somewhat helpful; 5 = very helpful) how helpful 20 different individuals (e.g., mother, father, coach, best friend) and groups (e.g., teammates, religious groups) are in providing emotional support and caring, and help and guidance. The ratings of each item were summed to yield a total social support score. A study of test-retest reliability using a sample of high school athletes yielded correlation coefficients of $.87$ for the emotional support portion and $.88$ for the help and guidance portion of this measure. These two components correlated $.88$ with each other (Smith, et al, 1990).

Athletic Injuries: An athletic injury was defined as a medical problem resulting from athletic participation that restricted subsequent participation for at least one day beyond the day of its occurrence (Garrick & Requa, 1978). These data were collected over

the course of the entire season, from the first practice through the final game (including league, sectional, and state playoffs, if applicable) for each team, and were provided by the head coach of each team. The total number of days missed due to injury for each athlete served as the measure of injury for that athlete (Smith, et al., 1990).

Procedures

Initially, the principal and the head varsity basketball coaches at each school were contacted. Once permission was received from the principal and each coach, the principle investigator trained the coach to collect injury data. Each day during the season, the coach indicated on a special team roster any player who did not participate and gave the reason for this (illness, injury, other). Follow-up phone calls were made to each coach during the first month of the season to ensure that data was being properly collected. Completed injury recording forms were collected by the principal investigator at the mid-point and end of the season. Coaches were assured that the purpose of the study was not to assess differences in teams or coaches, and that data from all teams were to be combined for analysis.

During the final two weeks of the season, the principle investigator made a presentation to each team during which a questionnaire packet was given to each player, along with instructions on how to fill out each questionnaire. The players were asked to read and sign the consent form, have a parent or guardian read and sign the consent form, and then to completely fill out all questionnaires and return the packet to their coach. No risks were anticipated, and subjects were not compensated for participation in this study.

Results

Descriptive Statistics

Complete questionnaires were obtained for all 67 subjects. Due to incomplete data collection by three coaches, however, injury data were not available for 15 female subjects. Hence, all analyses were performed using data from only 52 subjects.

Means and standard deviations for the injury measure, all life events variables, and the coping skills and social support measures are shown in Table 1. Of the 52 subjects for whom injury data was available, 14 missed at least one day due to injury. The mean number of days missed for the athletes in the injured group was 3.1, the median was three, and the range was one to seven days.

Correlational Analyses

Product-moment correlations of all variables of interest are presented in Table 2. Contrary to the hypothesis, the number of days missed due to injury was not significantly related to any of the life events variables. In fact, the injury measure was negatively correlated with each of the life events measures.

As expected, the injury measure was negatively correlated with both the coping skills and social support variables, but these correlations did not reach statistical significance.

Although none of the life events variables were related to the number of days missed due to injury, the correlation between the ALES negative score and days missed due to illness did approach significance ($r = .267$; $p = .055$). Correlations between days missed due to illness and the other life events variables did not approach significance.

MANOVA's

To further explore the data, three multivariate analyses of variance (MANOVA's) were conducted which compared 1) injured vs. non-injured groups on all questionnaire variables; 2) males vs. females on all questionnaire variables; and 3) starters vs. reserves on all questionnaire variables. None of these MANOVA's approached significance. Means and standard deviations on the questionnaire variables for all of these groups are presented in tables 3, 4, and 5.

Discussion

The results do not support the hypothesis that life event stress scores would be significantly related to injuries. The vast majority of studies in which a significant

Table 1 - Means and Standard Deviations for Predictor and Outcome Variables

	Injured Days	Illness Days	SARRS	ALES Pos	ALES Neg	ALES Total	Coping	Social Support
Mean	.83	.94	249.08	7.48	13.89	21.37	73.35	90.33
Standard Deviation	1.69	1.47	190.85	9.01	14.81	18.58	12.98	19.35

Table 2 - Correlations of Predictor and Outcome Variables

	Injured Days	Illness Days	SARRS	ALES Pos	ALES Neg	ALES Total	Coping
Illness Days	-.004						
SARRS	-.121	.216					
ALES Pos	-.136	-.128	.420 ***				
ALES Neg	-.051	.267	.783 ***	.169			
ALES Total	-.107	.151	.828 ***	.619 ***	.878 ***		
Coping	-.113	-.165	-.199	-.102	-.276 *	-.269	
Social Support	-.205	-.203	.138	.368 **	.076	.238	.163

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 3 - Means and Standard Deviations of Injured and Non-Injured Groups on Predictor and Outcome Variables

	Injured Days	Illness Days	SARRS	ALES Pos	ALES Neg	ALES Total	Coping	Social Support
Injured Group								
Mean	3.07	1.07	224.50	5.71	13.86	19.57	75.57	87.86
Standard Deviation	1.94	1.44	156.38	6.88	12.20	17.33	13.38	18.28
Non-Injured Group								
Mean	0.00	0.90	258.13	8.13	13.90	22.03	72.53	91.24
Standard Deviation	0.00	1.50	203.23	9.67	15.81	19.20	12.92	19.89

**Table 4 - Means and Standard Deviations of Males and Females
on Predictor and Outcome Variables**

	Injured Days	Illness Days	SARRS	ALES Pos	ALES Neg	ALES Total	Coping	Social Support
Males								
Mean	.83	.77	237.69	7.23	13.29	20.51	75.29	90.49
Standard Deviation	1.60	1.17	177.35	7.42	13.64	17.69	12.87	20.50
Females								
Mean	.82	1.29	272.53	8.00	15.12	23.12	69.35	90.00
Standard Deviation	1.91	1.96	219.99	11.89	17.35	20.75	12.66	17.34

**Table 5 - Means and Standard Deviations of Starters and Reserves
on Predictor and Outcome Variables**

	Injured Days	Illness Days	SARRS	ALES Pos	ALES Neg	ALES Total	Coping	Social Support
Starters								
Mean	0.78	0.70	216.78	7.04	13.11	20.15	73.15	89.63
Standard Deviation	1.60	1.03	149.50	7.43	13.05	18.33	14.28	15.68
Reserves								
Mean	0.88	1.20	283.96	7.96	14.72	22.68	73.56	91.08
Standard Deviation	1.81	1.83	225.28	10.59	16.73	19.14	11.71	22.99

positive relationship was found between life event stress and injuries have been conducted on high school and college football players. It was speculated here that those results could be attributed to the high injury rate among football players. NAIRS data indicate that 25% of college football players miss at least seven days of participation due to injury. In the present study, only 2 athletes (4%) missed 7 or more days due to injury, an indication that the majority of injuries suffered were not serious.

The injury data in the present study is very similar to the data collected by Smith and his colleagues (1990) in their study of high school wrestlers, gymnasts, and basketball players. Twenty-seven percent of the athletes in the present study sustained at least one injury, compared to 31% of the athletes in the Smith, et al., study. Also, for injured athletes, the mean number of days missed due to injury in the Smith study was 5.46, and the median three, while in the present study, the mean and median number of days missed were 3.1 and three respectively.

As was the case with the present study, Smith and his colleagues did not find a significant relationship between life event stress and days missed due to injury, nor did they report significant correlations between their injury measure and either coping skills or social support. Subsequent analyses by Smith and colleagues, however, do support the existence of a conjunctive moderator effect of coping skills and social support on the stress-injury relationship. Similar analyses could not be carried out in the present study due to a much smaller sample size (52 subjects vs. 424 subjects in the Smith, et al. study).

It seems, then, that while life event stress may account for a significant percentage of injury variance among high school athletes low in coping skills and social support, it may only influence injuries directly in football, which has a high rate of serious injuries. One mechanism that may underlie these results was demonstrated by Williams, Tonymon, and Anderson (1990). Williams and her colleagues examined the effects of life-event stress on the size of subjects' field of vision. It was discovered

that, when subjected in a laboratory to an acute stressor, subjects with high life event stress scores suffered significantly more narrowing of their peripheral vision than subjects with low life event stress scores. A lapse in peripheral vision may put football players at greater risk for injury because of the possibility of a high impact collision coming from any angle. While basketball players depend upon peripheral vision to play well, a lapse in this area may not put them at further risk of injury because the chance of a high-impact collision is not as great.

An alternative explanation for the lack of a stress-injury relationship in the present study is that the sample size was too small, and thus there were not enough injured athletes to yield reliable results. Because the correlations between days missed due to injury and the life events variables were all negative, however, it is unlikely that a larger sample would have yielded different results.

Several findings obtained here support the separate assessment of positive and negative life events. First, the ALES positive and negative scores were not significantly correlated with each other ($r = .169$), indicating that these two subscales are independent. Second, the ALES negative score was the only life events variable to approach a significant relationship with days missed due to illness. Third, among all life events variables, the ALES negative score was the only one to reach a significant relationship with the coping skills measure. Fourth, the ALES positive was the only life events variable to reach a significant correlation with the social support measure. Finally, the SARRS and the ALES total scores were not significantly correlated with any of the other variables in this study (except for the other life events measures).

Future research in this area should continue to focus on identifying groups of athletes that may be particularly at risk for sustaining injury. Variables that may moderate the stress-injury relationship should be included in any future investigation. Also, because variables such as coping skills and social support may exert a greater effect on the stress-injury relationship when examined conjunctively, large sample

sizes are necessary when conducting research of this type. Once we can reliably identify high-risk groups, we can then begin the work of testing different psychological interventions designed to prevent the occurrence of athletic injury.

References

- Abadie, D. A. (1976). Comparison of the personalities of non-injured and injured female athletes in intercollegiate competition. Dissertation Abstracts, 15, 82.
- Bergandi, T. A. (1985). Psychological variables relating to the incidence of athletic injury: A review of the literature. International Journal of Sport Psychology, 16, 141-149.
- Bramwell, S., Masuda, M., Wagner, N., & Holmes, T. (1975). Psychosocial factors in athletic injuries. Journal of Human Stress, 1, 6-20.
- Brown, R. B., (1971). Personality characteristics related to injuries in football. Research Quarterly for Exercise and Sport, 42, 133-138.
- Cattell, R. B., Eber, H. W., & Tatsuoka M. M. (1970). Handbook for the Sixteen Personality Factor Questionnaire (16PF). Champaign, Ill., Institute for Personality and Ability Testing.
- Cauce, A. M., Felnor, R. D., & Primavera, J. (1982). Social support in high-risk adolescents: Structural components and adaptive impact. American Journal of Community Psychology, 10, 417-428.
- Coddington, R. D., & Troxell, J. R. (1980). The effect of emotional factors on football injury rates: A pilot study. Journal of Human Stress, 6, 3-5.
- Cryan, P. O., & Alles, E. F. (1983). The relationship between stress and football injuries. Journal of Sports Medicine and Physical Fitness, 23, 52-58.
- Garrick, J. G., & Requa, R. K. (1978). Injuries in high school Sports. Pediatrics, 61, 465-473.
- Govern, J. W., & Koppenhaver, R. (1965). Attempt to predict athletic injuries. Medical Times, 93, 421-422.
- Holmes, T. H., & Rahe, R. H. (1967). The Social Readjustment Rating Scale. Journal of Psychosomatic Research, 11, 213-218.

- Jackson, D. W., Jarret, H., Barley, D., Kausek, J., Swanson, J. J., & Powell, J. W. (1978). Injury prediction in the young athlete. American Journal of Sports Medicine, 6, 6-14.
- Kraus, J. F., & Conroy, C. (1984). Mortality and morbidity from injuries in sports and recreation. Annual Review of Public Health, 5, 163-192.
- Kerr, G., & Minden, H. (1988). Psychological factors related to the occurrence of athletic injuries. Journal of Sport & Exercise Psychology, 10, 167-173.
- Lavarda, A. (1975). Contributions to the analysis of accident proneness in sport. International Journal of Sport Psychology, 6, 215-218.
- Lysens, R., Auweele, Y., & Ostry, M. (1986). The relationship between psychosocial factors and sports injuries. Journal of Sports Medicine, 26, 77-84.
- Passer, M. W., & Seese, M. D. (1983). Life stress and athletic injury: Examination of positive versus negative events and three moderator variables. Journal of Human Stress, 9, 11-16.
- Sarason, I. G., Johnson, J. H., & Siegel, J. M. (1978). Assessing the impact of life changes: Development of the Life Experiences Survey. Journal of Consulting and Clinical Psychology, 46, 932-940.
- Smith, R. E., Smoll, F. L., & Ptacek, J. T. (1990). Conjunctive moderator variables in vulnerability and resiliency research: Life stress, social support and coping skills, and adolescent sport injuries. Journal of Personality and Social Psychology, 58, 360-370.
- Smith, R. E., Smoll, F. L., & Schutz, R. (1988). The Athletic Coping Skills Inventory: Psychometric properties, correlates, and confirmatory factor analysis. Unpublished manuscript, University of Washington.
- Valiant, P. M. (1981). Personality and injury in competitive runners. Perceptual and Motor Skills, 53, 251-253.

- Williams, J. M., Haggert, J., Tonymon, P., & Wadsworth, W. A. (1986). Life stress and prediction of athletic injuries in volleyball, basketball, and cross-country running. In L.E. Unestahl (Ed.), Sport psychology in theory and practice. Orebro, Sweden: Veje Publishers.
- Williams, J.M., Tonymon, P., & Anderson, M. (1990). Effects of life-event stress on anxiety and peripheral narrowing. Behavioral Medicine, 16, 174-181.
- Williams, J. M., Tonymon, P., & Wadsworth, W. A. (1986). Relationship of stress to injury in intercollegiate volleyball. Journal of Human Stress, 12, 38-43.
- Young, M. L., & Cohen, D. A. (1979). Self-concept and injuries among female college tournament basketball players. American Corrective Therapy Journal, 33, 139-142.
- Young, M. L., & Cohen, D. A. (1981). Self-concept and injuries among female high school basketball players. Journal of Sports Medicine and Physical Fitness, 21, 55-61.

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**Appendix A
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**Appendix B
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**Appendix C
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**Appendix D
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University Microfilms International

Athletic Injury Recording Form

"X" out days on which no practice or game occurs

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