MEASUREMENT AND ANALYSIS OF SELF-PERCEIVED PRESSURE IN MALE AND FEMALE COLLEGIATE BASKETBALL PLAYERS

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A Thesis

Presented to

The Faculty of University Schools

Lakehead University

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In Partial Fulfillment

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Master of Science

in the

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by

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ABSTRACT

Title of Thesis: Measurement and Analysis of Self-Perceived Pressure in Collegiate Basketball Players.

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The purpose of this study was to assess relationships between aspects of self-perceived pressure of male and female collegiate basketball players prior to recurrent sporting events. The research design selected was a number of replications of a single subject case study. The Sport Pressure Checklist was administered before the two practices preceding a game and prior to both games in weekend double-header conference competitions. Immediately following a game each subject evaluated his/her performance. The data were analysed to determine (a) the consistency of responses of individuals over an extended period of time, (b) possible interactions of pressure sources within the

team setting, and (c) the direct effect of one competitive performance on pressure parameters preceding another close competitive effort. The subgroups of women's starters displayed some significant relationships between pressure and performance. The pressure area scores were consistent over a four day measurement period. The amount, type, and source of pressure for each subject was deemed to be unique and quite individualistic.

ACKNOWLEDGEMENTS

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I would like to thank the members of the Men's and Lady NorWester (1984-85) varsity basketball teams for their time and assistance in filling out the checklists.

Last but not least I would like to thank Mary Bouwmeester for her secretarial expertice.

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Chapter I

INTRODUCTION

Purpose

The purpose of this study was to assess relationships between aspects of self-perceived pressure of athletes prior to recurrent sporting events. The sample measured were members of a male and a female collegiate basketball team.

Significance of the Study

Far too often physiologically well-trained individuals perform poorly, despite being favoured prior to a competition. Coaches and athletes frequently term this affliction as "choking", "falling apart", or "not being able to handle the pressure". This study will make a purposeful effort to investigate pre-competition "pressure". The Sport Pressure Checklist (Sherman, 1984) assesses 16 sources of pressure, their appraised effects on athletes, and their day-to-day fluctuations. An investigation into the nature of pre-competition pressure is now possible through the use of this tool.

With the use of this checklist, the coach will be able to understand the specific source and amount of pressure that an athlete perceives prior to a competition. With this information, the coach may wish to enhance or reduce certain sources of pressure so as to produce circumstances which would facilitate improved performances.

Since the Sport Pressure Checklist is a new instrument, expanding the knowledge of how individuals respond to the tool would be a valuable addition to the science of sport psychology. This thesis looked at repeated testings on athletes in a team sport. The observations that were made will shed light on:

1. The consistency of responses of individuals over an extended period of time.

2. Possible interactions of stress sources within the team setting.

3. The direct effect of one competitive performance on pressure parameters preceding another close competitive effort.

Due to the fact that there are few to no objective data existing surrounding pre-competition pressure, the Sport Pressure Checklist will provide some reliable and measurable data, as opposed to existing anecdotal

references. A more complete understanding into the area of pre-competition pressure, with respect to the sport of basketball, is now possible.

This study primarily was concerned with detecting and understanding sources of pre-competition pressure. It was hoped that the knowledge gained about the tool for assessing pressure would provide more detailed and accurate information which will enable it to be used in the future to advantage by coaches.

Delimitations

This study was delimited to:

1. Those athletes participating on the men's and women's varsity basketball teams at Lakehead University during the 1984-85 season.

2. Great Plains Athletic Conference (G-PAC) home games, tournaments and various exhibitions at Lakehead University were used for measurement.

3. Testing two consecutive days before the first game, and one-and-a-half hours prior to each contest in weekend doubleheader conference competitions.

4. The provision of pressure scores to interested athletes upon request.

Limitations

The focus of most analyses was on Friday games. It was assumed that Friday games were influenced by pressure factors alone, whereas Saturday games were influenced by the outcome of the Friday games. Thus it was deemed that the Friday game better reflected the effects of pressure sources, whereas the Saturday game was contaminated by the events of the Friday evening.

It was assumed that the Sport Pressure Checklist is necessary, sufficient, comprehensive, and accurate in the measuring of the construct pressure.

Since the instrument uses a self-reporting method, it was assumed that an athlete would make a conscientious effort to complete the instrument honestly and to the best of his/her ability.

Definitions

Pressure is defined as an inevitable mental variable perceived by an individual and capable of drastically affecting athletic performance. This significant psychological variable may be viewed as having a positive or negative influence. Pressure is affected by situational factors and is not construed to be a permanent or trait feature of one's make-up.

Internal pressure is defined as an additional psychological burden an individual imposes upon him/herself that could alter the thinking, feeling, or belief that a certain task ought to be accomplished. This pressure is derived from one's own inner thoughts and appraisals.

External pressure is defined as pressure stemming from a person's appraisal or appraised reaction to another person, group of persons, or external event.

Positive pressure is referred to as self-perceived feelings that the source of pressure will assist an athlete to perform well or in a desirable manner.

Negative pressure is referred to as self-perceived feelings that the source of pressure bothers the athlete or forces him/her to perform in an undesirable manner.

Chapter II

REVIEW OF LITERATURE

Pressure

The concept. Murray (1938) defined pressure as, "The property of power an environmental object or persons holds, having a facilitating or impeding effect on the individual's effort to achieve a certain goal" (p. 290). The definition was further qualified by categorizing it into two types, alpha and beta. Alpha pressure is concerned with the properties of the environmental objects and people as they are in reality. Beta pressure is defined as the properties of an environment's objects and persons as they are integrated or perceived by the individual.

Barrett (1960) proposed that pressure is an inevitable, unavoidable force to which an individual must adjust. Like Murray (1938), Barrett categorically defined pressure into two types. Firstly, Barrett defined pressure as being mynetic, pressure that is derived from one's inner thoughts. Secondly, pressure was also defined as direactive, pressure which stems from a person's reaction to another person or group of

persons. Barrett also stated, "To most people pressure connotes a vague feeling of tension or discomfort from which they would like to be released" (p. 13).

More recently, in a sports related context, Sherman (1984) defined pressure as, "An inevitable mental variable perceived by an individual and capable of drastically affecting performance" (p. 4). Sherman classified pressure as having internal, external, positive, and negative components, in the measurement of total self-perceived pressure.

There is a distinct lack of scientific investigation of pressure in sport. However, there are some general considerations which should be noted. Hannisch (1978) stated, "Structure drills and practice sessions as close to game situations as possible, gradually exposing players to more pressurized situations as their skill level warrants it" (p. 32). This concept follows along the lines of simulation or model training in which game stressors are repeatedly simulated during practice (Vanek, 1974; Vanek & Cratty, 1970). This type of quality practice is deemed to aid in coping with game pressures, and to produce an increase in the confidence of a player's ability to handle all situations (Hannisch, 1978).

Pate, Rottela and McClenaghan (1984) stated that self-induced pressures impede athletes from performing to the best of their ability. Along these lines, Hanna (1979) emphasized the athlete's inner vulnerability to the stress of competition.

McCafferty (1973) proposed that external pressures (parents, coaches) were responsible for a high drop-out rate in swimmers. Other external pressures, such as academic demands and coaches expectations (Pate et al, 1984), were deemed to have an impeding effect upon athletic performance.

Alderman (1978) stressed the need for further research in this area. He stated:

> It is within this context that coaches go grey. All we can do at present is be aware of what can happen to a young athlete under pressure and realize that we must improve our knowledge of what major variables are operating on the situation and how they influence the personal structure of each athlete. (p. 99)

In summary, pressure is proposed as a mental variable perceived by an individual, created from many sources and capable of significantly affecting athletic performance.

Stress, Pressure and Performance

Stress connotates different meanings for a variety of academic disciplines. For this thesis, the following definition will be adhered to. Stress will be defined as "the non-specific response of the body to any demand made upon it" (Selye, 1974, p. 22).

Stress may be viewed on a continuum, with not enough stress at one extreme and too much at the other. In the middle of the continuum lies the construct of eustress or favourable stress. At the ends lie distress or unfavourable stresses. Seyle (1974) defined the factors that induce or create stress as 'stressors'. Selye (1974) further emphasized that it is not stress as such that which causes disease, but rather a person's reaction to it.

Stress is a widely studied phenomenon in sport. Martens (1977) stated that competitive stress is an overload or underload of demands made upon the athlete. Martens's competitive stress is analogous to Selye's (1974) concept of distress. More specifically, Kroll (1981) listed a number of causal factors of competitive stress. These items are grouped into five areas, (a) somatic complaints, (b) fear of failure, (c) feelings of inadequacy, (d) loss of control, and

(e) guilt. It has been shown that stress, more specifically distress, can have an inhibitory effect upon health and athletic performance (Surkina, 1982). It also has been found that the physiology of the body is adversely affected with increasing amounts of competitive stress (Pierce, Kupprat, & Harry, 1976).

With the pressure of stress, there are a number of stress reduction techniques (Kroll, 1981). These techniques have been used in sports and are basic to stress management. Sime and Zaichkowsky (1982) detailed various ways to handle stress in the athletic environment. Along with stress, superstition or pregame ritualistic behaviours, occur as natural coping measures that aid in stress reduction (Gregory, 1975; Neil, 1982).

Stress inventories, such as the A Stress Index - Swimming Inventory S14 (Rushall, 1975) assess whether an individual is stressed and if so, identifies the factors that precipitated the stressed condition. In the research concerning stress and competitive athletes, a common factor is the individuality of amount and type that each person needs to perform optimally (Jacobs, 1982; Daniel, 1981).

Pressure in sport is written about anecdotally, but has received little scientific research attention. Vanek and Cratty (1974), and Rushall (1979) espoused model or simulation training to simulate game stressors and pressures during the practice.

The Individual and Pressure

Throughout the literature there are two major forms of pressure which are discussed. Barrett (1960) proposed mynetic (internal) and direactive (external) pressure. Murray (1938) originally defined pressure as alpha (external pressure) and beta (internal pressure). Sherman (1984) most recently defined pressure as having an internal and external component, and each source whether, internal or external may have a perceived positive (facilitory) or negative (impeding) effect upon performance.

Sherman (1984) listed a number of internal and external sources of pressure. Internal pressure was shown to arise from:

1. Expectancy of success or winning (Alderman, 1974; Barrett, 1960; McCafferty, 1973).

2. Importance of the game or competition (Jacobs, 1982; Daniel, 1981).

3. Self-esteem or self-image (Hanna, 1979; Hogg, 1980).

4. Self-limits, self doubts or uncertainty (Alderman & Hogg, 1978; Barrett, 1960; Pate et al, 1984).

External pressures were shown to arise from:

1. Parents and coaches (Elliot, 1980; Hanna, 1979; Jacobs, 1982; McCafferty, 1973; Pate et al, 1984; Rushall, 1982).

2. Friends and teammates (Jacobs, 1982; McCafferty, 1973).

3. Crowds and spectators (Daniel, 1984; Jacobs, 1980; Rushall, 1981, 1982; Vanek, 1974; Vanek & Cratty, 1970).

4. Opponents (Jacobs, 1982; Hannisch, 1980; McCafferty, 1973; Rushall, 1982).

5. Media and officials (Rushall, 1982).

These pressures may be viewed as being either positive or negative (Sherman, 1984).

In summary, from the list of pressure sources, internal and external pressures may affect performance significantly. Barrett (1960) stated that the amount of pressure in a situation depended upon the placed importance or meaning that pressure has for each

individual, that is, is it perceived as being positive or negative.

The Measurement of Self-Perceived Pressure

Recently, Sherman (1984) constructed the Sport Pressure Checklist to measure self-perceived pressure in athletes prior to a competitive situation. The design for the instrument was based upon the modification of some life-stress measures. These measures were the Life Experiences Survey (LES) (Sarason, Johnson & Siegel, 1978), Schedule of Recent Experiences (SRE) (Holmes & Rahe, 1967), and a modified version of the SRE (Vinokur & Selzer, 1975). Along with these life-stress measures, the concept of locus of control was used to measure the internal and external constructs of pressure (Rotter, 1966; Stauss, 1975).

The Sport Pressure Checklist (SPC) in its final form concentrated upon 16 sources of pressure that comprise four areas or types of pressure. The four areas were positive, negative, internal, and external. After being assessed by a panel or judges, it was found to validly measure the construct with respect to an athlete's environment. The test-retest reliabilities

of the four checklist scores, positive, negative, internal and external, were 0.97, 0.97, 0.92 and 0.92 for an one hour test-retest and 0.95, 0.98, 0.89 and 0.86 for an one day test-retest, respectively.

Rushall (1984) tested members of the Canadian Olympic Ski Jumping team on four separate occasions, the 70 and 90 meter Canadian National Championships and both the 1984 winter Olympic Games events held at Sarajevo.

The following list summarizes the tentative patterns found (Rushall, 1984):

1. An absence of negative pressure scores among the athletes.

2. Internal and positive were the dominant pressure scores.

3. Individuality amongst pressure scores was very evident.

4. In post competition measurement, pressure scores dropped off.

5. No other pressure sources existed other than those measured.

6. Each competition was different and was reflected in the various pre-competition pressure scores.

7. Pressure scores were sensitive to illnesses and jet-lag.

Summary

The primarily anecdotal literature alludes to the fact that internal and external pressure does significantly affect athletic performance. These self-perceived pressures may be viewed as positive (facilitory) or negative (impeding). Barrett (1960) reinforced this view by stating, "that the amount of pressure in a situation depends upon the placed importance or meaning that pressure has for each individual" (p. 13).

Finally, it has been shown that the Sport Pressure Checklist is a valid, reliable, situational assessment inventory which is suitable for athletes prior to an athletic competition. With the pioneering work of Rushall and Sherman (1984) into the area of athlete pressure measurement, a wide range or research possibilities for further research has emerged. This study aims to assess the utility and measurement of pressure on particular athlete samples. The outcomes of this work should increase the understanding of pressure and sport.

Chapter III

METHODOLOGY

Research Design

The research designs selected for this thesis were a number of replications of an individual case study and the combination of individuals into standing groups (teams).

Subjects

The subjects consisted of 23 members of the Lakehead University men's and women's basketball teams. The subjects ranged in age from 18 to 23.

The women's team contained five freshmen, three sophomores, three juniors, and one senior. The team was coached by Mr. Stu Julius, who was in his fourth year as head coach of the Lady Nor'Westers. The Lady Nor'Westers were predicted to finish high in their conference standings.

The men's team contained six freshmen, two sophomores, one junior and two seniors. The team was coached by Mr. John Zanatta, who was in his fourth year of coaching the Nor'Westers. The men's team was pre-

dicted to finish low in their conference standings, and were deemed to be in a rebuilding year.

Measurement Technique

The technique involved the application of a self-reporting instrument to measure the construct pressure. The instrument that was used was the Sport Pressure Checklist. The Sport Pressure Checklist, as designed by Sherman (1984), was constructed as a valid, comprehensive checklist applicable to measuring self-perceived pressure in a sporting environment.

The instrument assesses the amount of 16 sources of self-perceived pressure prior to a competition. A seven-point Likert-scale is employed to determine the amount of pressure. The instrument's primary concern is with four areas of pressure: (a) internal, (b) external, (c) positive, and (d) negative. Appendix A contains a copy of the instrument.

The subjects were instructed to review each source of pressure with respect to an upcoming event and check-off a category on the seven-point scale, from very 'negative' through 'no influence' to 'very positive'. Checking-off the seven-point Likert-scale

provided a qualitative and quantitative assessment of each pressure source with regard to a future event. The purpose, explanation, and clarification of any misinterpreted items were corrected for all players during an adaptation and information session before the competitive season started.

Following each contest, the athlete was instructed to fill out a performance evaluation form. This form had the athlete evaluate his/her performance into one of five categories; great, good, normal, poor, and very poor.

Data Collection

The data were collected during the 1984-85 academic year at Lakehead University. Specifically, this was done at all home games of the (G-PAC) Great Plains Athletic Conference, the Second Annual Nor'Westers Invitational Basketball Tournament, and various home court exhibition games, although only G-PAC games were used as data for this study.

The Sport Pressure Checklist was completed between a maximum of 30 minutes and a minimum of two minutes before practice for each of the two days prior to the contest or event. The checklist was completed between

one and one-half hour prior to each game, so as not to interfere with the coach's or the athlete's preparation for the contest. The evaluation of the athlete's performance was completed approximately 10 minutes after each game. The criterion for selection of which athletes should fill out an evaluation of performance form was a minimum of two minutes of playing time during the game. The Sport Pressure Checklist takes approximately two minutes to complete. The evaluation of game performance takes less than half a minute.

Subject Control

Before the administration of the instrument, an adaptation and information session was held with the athletes. At this session, the athletes were instructed to review the written explanation and instructions for the completion of the Sport Pressure Checklist. Then, after the questioning to insure complete understanding, the athlete was instructed to review the written definitions for the sources of pressure. After the athletes finished reviewing the definitions, time was set aside to clarify any problems or misinterpretations that arose. Following this, the athletes were instructed to complete the checklist,

keeping in mind a future contest. The annual Alumni game was used as the adaptation game. For the one day prior to and on the day of the Alumni game, close supervision and repeated questioning was performed to ensure the understanding and clarification of the checklist. Following the completion of the checklist, time was set aside to emphasize the need to fill out the instrument honestly and conscientiously. A short explanation of the purpose of the research and the answering of any final questions completed the adaptation and information session.

Following the Christmas break in the teams' schedules, a review session was held. It included meeting each athlete individually to re-emphasize the need to honestly and conscientiously fill-out the checklist to the best of his/her ability. Checklist completion was performed before every home game even though G-PAC games were only those used for analysis in this study.

Reliability Check

The reliability of the Sport Pressure Checklist was determined by a test-retest procedure for each team. Since this inventory is situational in its use

and designation, it was important to retest quickly (shortly) after the original testing. This was accomplished by having the subjects complete the checklist, participate in a full one-and-a-half hour practice, and then complete the checklist again.

The scores of the four categories (a) positive, (b) negative, (c) internal, and (d) external, from the test was totaled and correlation coefficients were calculated. If a coefficient did not exceed the Pearson's Product-Moment correlation of $r = .80$, it was not deemed sufficient for this study, and was eliminated from the data analysis. Each checklist item was assessed on a similar test-retest basis for each team.

Data Analysis

The data that were analyzed were the four pressure scores obtained from the checklist and each item response for pre-game completions for each subject. The pattern of scores for each observation period was dichotomized according to the following criteria: (a) if the Wednesday score was lower than the Friday score for a factor then the trend was deemed to be an increase, and (b) if the Wednesday score was equal to

or greater than the Friday score then the trend was deemed to be a decrease. These trends were found for each of the four pressure scores for each subject. These data were combined in a variety of ways to consider potential relationships.

Thus the analysis focused upon three areas: (a) subjects, (b) groups, and (c) factors.

The preliminary analysis of subjects' responses looked at:

1. Variables checked on all G-PAC games.

2. Variables checked on some G-PAC games.

3. Analysis of change in magnitude for each pressure scale item for Friday night games. Saturday games were not considered because of the possible influence (confounding) of events in the Friday game. If a pre-Friday game pressure score differed from one week to the next, a "change" was deemed to have occurred. The number of such changes were totalled for each pressure scale item for each subject. If such changes occurred for more than two-thirds of the observations, then that item was deemed to be a significant source of pressure for an individual. The factors in which at least one change was noted were logged for each player in each team. The total number

of items which exhibited a change were developed for each player. If more than two-thirds of the players in either/both teams indicated an item as a source of change, then that item was deemed to be of interest for further discussion.

The group analyses looked at the pressure sources and pressure areas that are most common and most variable within the men's and women's teams.

The analysis of factors focused upon:

1. The reliability of the scales and items alone (Pearson Product-Moment Correlation Coefficient).

2. The four pressure areas correlated with performance, and each other for the teams (Pearson Product-Moment Correlation Coefficient).

3. The relationship between pressure areas and performance for starters and non-starters (Pearson Product-Moment Correlation Coefficient).

4. A comparison between starters and non-starters using each pressure score minus performance score as data (t-test).

5. The relationship between game performances and pre-game pressure trends. (Point-biserial correlations).

6. Changes in pressure scores during the four day pre-competition and competition period. (Pearson Product-Moment Correlation Coefficient).

7. The analysis of pressure score changes over time for both teams.

Chapter IV

RESULTS

Reliability

A test-retest session was held to obtain data in order to evaluate the reliability of the Sport Pressure Checklist. From the data, Pearson Product Moment Correlation Coefficients were obtained for the 16 sources and four areas of pressure.

As seen from Table 1, the four pressure areas exceeded an $r = 0.8$ and were significant, (p 0.01).

Table 1

Test - Retest Pressure Score Reliability Coefficients Obtained After a One-and-a-half Hour Intervention Period

Pressure Area	Men's Team		Women's Team	
	r	n	r	n
positive	0.9923**	9	0.9957**	9
negative	1.0000**	9	0.8109*	9
internal	0.9859**	9	0.9719**	9
external	0.9648**	9	0.9833**	9

significant at $p < .01$*

significant at $p < .001$**

Appendix B contains tables that display the reliability correlation coefficients for each of the 16 sources of pressure.

The Relationship Between Pressure Areas and Performance Team:

Pearson Product Moment correlation coefficients were obtained for each pressure area correlated with game performance, and for each pressure area correlated with the remaining pressure areas. The data used for the calculations were those obtained for the Friday and Saturday G-PAC games for the men's and women's teams. Table 2 displays the correlation coefficients between the pressure areas and game performance for the Friday and Saturday G-PAC games for the men's and women's team.

The correlations between game performance and pressure areas yielded only one statistically significant relationship. This was the correlation between negative pressure and game performance, (r = 0.6147), which was significant at the $p < .05$ alpha level. The relationship occurred within the men's team on the Friday G-PAC games. The remaining correlations on

Table 2

Correlation Coefficients Between Pressure Areas and Game Performance

Group and Game	Positive	Negative	Internal	External
Women's Friday				
Team (N=12)	.0210	.3012	.1543	.1730
Starters (N=5)	.8247*	-.2752	.7677	.8335*
Non-starters (N=7)	.1007	.1402	.1053	.1358
Men's Friday				
Team (N=11)	.1124	.6147	.3200	.4159
Starters (N=5)	-.6650	.9689*	-.5030	-.6788
Non-starters (N=6)	.1813	.5124	.3082	.3883
Women's Saturday				
Team (N=12)	.0956	.4408	.2485	.2938
Starters (N=5)	.3939	.2214	.1870	.5469
Non-starters (N=7)	.1690	.3477	.2290	.2858
Men's Saturday				
Team (N=11)	.0442	.4522	.1838	.3269
Starters (N=5)	-.1743	.0668	-.1896	-.1590
Non-starters (N=6)	.0015	.3155	.1083	.2155

Friday and Saturday for both teams did not exceed r = 0.50 and thus, were not significant.

The correlations between pressure areas displayed very different results. The four pressure areas correlated for both teams on Friday and Saturday G-PAC games were almost all significant at the .001 alpha level. All the correlations were significant at the $p < .05$ alpha level. The correlations ranged from r = 0.6200 to r = 0.9909.

Appendix C contains a list of correlations for each Friday and each Saturday G-PAC game of pressure areas correlated with performance and pressure areas correlated with other pressure areas.

This analysis indicated that pressure areas were not related to basketball performance.

Relationship Between Pressure Areas and Performance for Starters and Non-Starters

Table 2 lists the correlation coefficients between pressure areas and game performances for both teams for Friday and Saturday night games. The magnitude of the coefficients varied considerably between the starters and non-starters and between the teams. To determine if the displayed variations were significantly

different, a t-test was conducted for each team using each pressure scale score minus the performance score as data. Thus, four comparisons were conducted for the two teams for each of two days. The t-test revealed that only one comparison, for men on Friday nights on the negative score ($t = 4.024$, $df = 7$), was significant at the .05 level of confidence.

In general, the relationship between pressure scores and game performance was not evidenced to any remarkable degree in these two team sub-groups. Isolated relationships were revealed but no consistent patterns of results emerged.

Over both Friday and Saturday G-PAC games the men's starters produced five out of a possible eight negative correlations between game performance and pressure areas, although none of these was significant. The women produced six out of a possible eight positive correlations, of which two were significant, between pressure areas and game performance.

The pressure areas, when correlated with the other pressure areas yield 15 out of a possible 24 statistically significant correlations at the $p < .05$ alpha level. This suggests a considerable degree of consistency within the measures although they are

purported to be "state" phenomena. Table 2 summarizes the correlation coefficients between pressure areas and pressure areas with game performance for the men and women starters for the Friday G-PAC games. Table 2 also summarizes the correlation coefficients for the Saturday G-PAC games for the men and women starters.

This analysis suggests that pressure scores are not related to game performance. However, the small subject numbers and relatively high correlation values hint that there may be some association between pressure scores and the performance of the first game in a two game series.

Relationship between Game Performance and Trends of Pressure Scores

A point-biserial correlation was calculated for both the men and women team's for the Friday G-PAC games. Specifically, the relationship was between the game performance scores (continuous variable) and trends of each pressure area (dichotomy - increase and decrease). None of the correlations for the pressure areas for either the men or women team's exceeded $r = 0.3$, and thus, were not significant. Table 3

displays the correlation coefficient between pressure area and game performance.

Table 3

Biserial Correlation between Trends of Pressure Scores and Game Performance Scores

Pressure Area	Game Performance Men	Women
positive	-0.0511	-0.1090
negative	0.2922	-0.1781
internal	0.1415	-0.0814
external	-0.0552	-0.1342
	n=30 df=28	n=34 df-32

significant to the $p < .05$*

significant to the $p < .001$**

This analysis indicated that whether pressure scores were increasing, stable or decreasing prior to a game was not related to a subsequent performance in basketball.

Changes in Pressure Scores over Time

An examination of each pressure score was undertaken. Pearson Product Moment correlation

coefficients were calculated for each pressure area for each successive day. A correlation between the first and last day of the measurement period was also calculated. The correlations were for four measurement periods encompassing eight G-PAC games. The correlation coefficient produced were generally very high in that most of the correlation coefficients ranged from 0.8124 to 0.9935 for both the men and women teams.

The women's team produced 49 correlations at the $p < .001$ alpha level, 14 at the $p < .05$ alpha level and one nonsignificant relationship (see Table 4). The men produced 55 correlations at the $p < .001$ alpha level, seven at the $p < .05$ alpha level and two nonsignificant relationships.

This analysis indicated that there was considerable day-to-day consistency in the pressure scores across a four-day competition period. This hints at pressure as being a fairly robust entity over the period of time evaluated. Table 5 summarizes the correlation coefficient over the four measurement periods for the men's team.

Table 4

Relationships of Pressure Scores Over Time for the Women's Team

Games 1 & 2

Pressure Area

Day/Day	positive	negative	internal	external
Wed/Thurs	0.9469**	0.6134 *	0.8627**	0.8439**
Thurs/Fri	0.9516**	0.6066 *	0.8403**	0.8876**
Fri/Sat	0.9123**	0.5716 *	0.8847**	0.9082**
Wed/Sat	0.7738 *	0.0951	0.9018**	0.8356**

Games 3 & 4

Pressure Area

Day/Day	positive	negative	internal	external
Wed/Thurs	0.9708**	0.6680 *	0.9088**	0.9370**
Thurs/Fri	0.9575**	0.8342**	0.8702**	0.9495**
Fri/Sat	0.9545**	0.7842**	0.8865**	0.9614**
Wed/Sat	0.9033**	0.8662 *	0.8315**	0.9565**

cont'd

Table 4 (cont'd)

Games 5 & 6

Pressure Area

Day/Day	positive	negative	internal	external
Wed/Thurs	0.9441**	0.8122 *	0.9194**	0.9186**
Thurs/Fri	0.9620**	0.6152 *	0.9143**	0.9570**
Fri/Sat	0.8733**	0.7317 *	0.7277 *	0.9243**
Wed/Sat	0.8589**	0.7350 *	0.6306 *	0.9926**

Games 7 & 8

Pressure Area

Day/Day	positive	negative	internal	external
Wed/Thurs	0.9881**	0.9335**	0.9704**	0.9772**
Thurs/Fri	0.9934**	0.9753**	0.9862**	0.9935**
Fri/Sat	0.9083**	0.8794**	0.9265**	0.9070**
Wed/Sat	0.8091**	0.7200 *	0.8124**	0.8682**

significant to the $p < .05$ level *

significant to the $p < .001$ level **

n = 12

Table 5

Relationship of Pressure Area Scores Over Time for the Men's Team

Games 1 & 2

Pressure Area

Day/Day	positive	negative	internal	external
Wed/Thurs	0.9550**	--	0.9085 *	0.9440**
Thurs/Fri	0.9113**	1.000**	0.0924**	0.7835 *
Fri/Sat	0.9826**	0.6614 *	0.9709**	0.8844**
Wed/Sat	0.9651**	-0.1667	0.9518**	0.8956 *

Games 3 & 4

Pressure Area

Day/Day	positive	negative	internal	external
Wed/Thurs	0.9777**	0.9701**	0.9286**	0.8429**
Thurs/Fri	0.9620**	0.9886**	0.9524**	0.9327**
Fri/Sat	0.9791**	0.7262 *	0.9424**	0.9019**
Wed/Sat	0.9230**	0.7840 *	0.9068**	0.8997**

cont'd

Table 5 (cont'd)

Games 5 & 6

Pressure Area

Day/Day	positive	negative	internal	external
Wed/Thurs	0.9725**	0.9474**	0.9803**	0.8786**
Thurs/Fri	0.9386**	0.8170**	0.9624**	0.8378**
Fri/Sat	0.9065**	0.8333**	0.8973**	0.8860**
Wed/Sat	0.9559**	0.8898**	0.9381**	0.9147**

Games 7 & 8

Pressure Area

Day/Day	positive	negative	internal	external
Wed/Thurs	0.9931**	0.9020**	0.9668**	0.9580**
Thurs/Fri	0.9857**	0.9397**	0.9627**	0.9709**
Fri/Sat	0.9651**	0.7259 *	0.9412**	0.8383**
Wed/Sat	0.9535**	0.9020**	0.9397**	0.8062**

significant to the $p < .05$ *

significant to the $p < .001$ **

Analysis of Change in Pressure Scale Items

All players showed some variations in same week-to-week pressure scale items prior to a Friday's game. The amounts of individual variations within each team were very marked. In the men's team S_1 only indicated a source of pressure change in one item whereas S_3 changed in 14 of the 16 areas. The range was not so great for the women's team (S_1 changed in two items while S_2 and S_9 changed in nine). The number of factors which altered and the actual items which altered were very unique. It was deemed that if two-thirds of the players in a team exhibited a response "change" to a particular item, then that item would be a general source of change for the team. For the men's team, only item 10 (contest difficulty) changed in six of the nine athletes, whereas for the women's team, item six (contest preparation) changed in eight of eleven players. This lack of common response supports the interpretation that responses to the pressure scale are very individual.

The men's team showed that the response to contest difficulty reached the criterion of 64 percent across all subjects.

Tables 6 and 7 summarize the specific pressure areas and variability for each subject and for each team.

This analysis indicated that there were few consistent sources of pressure which changed frequently across all subjects over the investigation period. This highlights the individual nature of pressure influences for each athlete or group of athletes.

Table 6

Analysis of Change of Pressure Over Time for the Women's Team

Pressure Source	Subjects S_1	S_2	S_3	S_4	S_5	S_6	S_7	S_8	S_9	S_{10}	S_{11}	S_{12}	T
1													0/11
2		X				X			X	X	X		5/11
3		X							X		X		3/11
4		X				X				X	X		4/11
5	X	X	X			X							4/11
6		X		X	X	X		X	X	X		X	8/11
7		X	X						X				3/11
8									X			X	2/11
9				X		X							2/11
10		X						X			X		3/11
11		X		X				X			X		4/11
12				X				X	X			X	4/11
13		X						X					2/11
14	X		X	X	X			X	X			X	7/11
15						X		X	X				3/11
16					X	X		X	X				4/11
=	2	9	3	5	3	7		8	9	3	5	4	

Table 7

Analysis of Change of Pressure Over Time for the Men's Team

Pressure Source	Subjects S_1	S_2	S_3	S_4	S_5	S_6	S_7	S_8	S_9	S_{10}	S_{11}	T
1					X							1/9
2			X	X			X	X				4/9
3			X	X	X		X			X		5/9
4			X				X	X		X		4/9
5			X	X	X					X		4/9
6			X	X				X				3/9
7		X	X		X	X		X				5/9
8		X	X	X				X				4/9
9			X					X				2/9
10	X	X	X	X			X	X				6/9
11		X	X	X		X						4/9
12		X	X		X	X				X		5/9
13								X				1/9
14			X			X		X		X		4/9
15		X	X	X				X				4/9
16			X					X		X		3/9
=	1	6	14	8	5	4	4	11		6		

Chapter V

DISCUSSION

Reliability

Sherman (1984) tested 20 subjects to evaluate the reliability of the Sport Pressure Checklist. In a one hour test-retest for positive, negative, internal and external pressure areas he arrived at the following correlations 0.97, 0.97, 0.92 and 0.92 respectively. In this thesis a one-and-a-half hour intervention period was used and the test-retest correlations were 0.99, 1.00, 0.98, and 0.96 for the men's team and 0.99, 0.81, 0.97, and 0.98 for the women's team. These results demonstrated high test-retest correlations over a short time period as did Sherman's (1984) results.

The relationships of pressure scores over time for both teams showed that the obtained scores were reliable from day-to-day (see Table 4 and 5). Despite practices, and a host of other varied influences, the day-to-day correlations of the four pressure scores, on a team basis, and for each G-PAC double-header game schedule, remained very high and consistent. This

means that the tool is reliable during the period when it would most likely be affected by extraneous variables.

The high levels of pressure score reliabilities, indicate that pressure features are reasonably stable over a short period (four-days) of time.

A test-retest correlation coefficient was produced for each checklist item for each team. Appendix B contains a list of the correlations. One pressure source across both teams did not achieve statistical significance that item being "officials and organizers actions". It appeared to this writer that many of the players had a difficult time differentiating between an official (organizer) and an official (referee). Due to the nature of the sport, it might be considered necessary to alter or add a pressure source that encompasses referees in the measurement of pressure for a basketball sample. That action may increase the reliability of the current item #13 on the checklist.

This study supported the contention that the Sport Pressure Checklist is a very reliable instrument for the measurement of the construct pressure and its constituent items in the sport of basketball.

Pressure Scores and Performance for Teams

Due to the few number of games, a single subject analysis of the association of pressure with performance could not be undertaken. Therefore, the grouping of subjects and the measurement of each team was performed. No consistent relationship between pressure scores and performance was displayed. The only significant relationship occurred with the men's team Friday G-PAC games between negative pressure scores and game performance scores. The lack of relationships of significance indicates that on a group basis pressure is not related to performance. This is contrary to popular belief and will need to be replicated in other sports and groups to ascertain some credence.

It is still possible that within individuals, a relationship between pressure and performance exists. This was hypothesized by Rushall (1984). Future studies will have to be conducted with adequate amounts of data to perform such individual analysis.

It is interesting to note the magnitude of the game performance correlations. Within the women's team

all the correlations increased slightly from Friday to Saturday G-PAC games, while the men's correlations all decreased slightly for the same time period.

The significant relationships of each pressure score with the others indicates that the four areas are consistent in their occurrence. This suggests that the commonalities between the four pressure scores are stable across team memberships on any particular day. The major implications of this phenomenon is that events which precede the completion of the Sport Pressure Checklist affect player's scores in a consistent manner.

Pressure Areas and Performance and Non-starters

The correlation coefficients varied considerably between starters and non-starters in each team. The t-test for differences between the two groups yielded only one significant comparison. This analysis was hampered by the inherent limitation of small numbers of subjects which reduced the power of statistical tests.

The means of each group of difference scores (see Table 8) were not that markedly different except possible for the women's team scores.

Table 8

Means for each Pressure Score Minus Performance Score for Friday and Saturdays for Both Teams

Group and Game	Pressure Scores			
	Positive	Negative	Internal	External
Women's Friday				
Starters (N=5)	18.4	-2.5	10.8	5.1
Non-starters (N=7)	11.71	-1.03	8.42	2.46
Men's Friday				
Starters (N=5)	17.13	-2.36	11.03	4.73
Non-starters (N=5)	15.35	-2.60	10.25	2.5
Women's Saturday				
Starters (N=5)	18.46	-2.2	11.05	5.3
Non-starters (N=7)	12.3	-1.02	8.70	2.75
Men's Saturday				
Starters (N=5)	17.55	-2.7	10.7	4.15
Non-starters (N=5)	15.05	-1.55	9.93	3.56

This elementary attempt at determining if the data which generated the seemingly different correlations coefficients was in fact statistically different did not shed much light on the dilemma. It is only possible to report that the correlation coefficients obtained from the very small samples of starters and non-starters did differ. To what extent they differed remains to be determined by another investigation.

Trends of Pressure and Game Performance

An analysis was performed to determine whether or not rising or lowering/stable levels of pressure were indicative of game performance scores on Friday nights. Point-biserial correlations between directional trends of pressure scores and game performance revealed no significant relationships (see Table 3).

The data did not support the contention that "rising" pressure scores (increasing scores) or the "lowering" of pressure scores (stable or decreasing scores) were related to performance. Rushall (1984) had suggested that increasing positive pressure scores were related to increased levels of performance in Olympic ski jumpers. That suggestion was not supported in this study. The data for this study were collected

over a longer period of time and for many more competitors than those of Rushall. This increased time period included mid-season performance "slumps" and the possible influence of the Saturday night games. The high degree of individuality which was evident in both teams would also obscure any common trends. Thus, this study, and its limitations, did not support any relationship between the patterning of pressure scores over the three-day period, prior to a competition and the standard of competition performance in collegiate basketball players.

Analysis of Change in Pressure Scale Items

All sources of pressure items were indicated as changing for both teams. This re-affirmed the validity of the items in the Sport Pressure Checklist as being valid sources of pressure. Rushall (1984) contended that response patterns to the checklist were individual and should not be considered in groups. The data obtained in this study supported the individual patterning of responses to the checklist items and a lack of common response patterns between subjects. The other group analyses of this study which have also

failed to yield obvious patterns of responses support the contention of individual analysis for the checklist.

The two items which indicated change for more than two-thirds of team members in each item were different. This strengthened the assertion that generalizations about teams with regard to pressure sources or scores did not exist.

The implication for coaching from this finding is that each athlete reacts differently to pressure sources prior to a competition. Strategies for preparing athletes in an individual manner would be more suited to pre-competition preparations than group oriented procedures to the sport of basketball.

Sample Sizes

The limitations of this study, in Chapter I acknowledged that small sample sizes would be used. This is an inherent feature of the sport of basketball. There are only five starters in a game, and usually, not many more non-starters. Thus, the power of statistical tests will be reduced greatly because of this limitation.

One could consider combining starters for various teams to increase sample sizes. This was considered in this investigation and was resisted because it would have created a group that had no real counterpart in the sport, (mixed men's and women's teams do not exist). Future investigations might consider pooling subjects from various teams, but consideration should be given to the effects, and possible confounding, of such a pooling action.

The inherent small sample sizes of studying restricted teams presents a challenge to researchers to devise appropriate research designs and decision making criteria which will reveal the truth about the relationship of pressure and sports performance. That is a topic for future studies and theses.

Anecdotal Information

Several anecdotes are recounted here to suggest items for future investigations or to qualify what resulted in this study. These anecdotes serve as the author's opinions and observations as they pertain to the topics under consideration.

1. Injury and illness are reflected in the pressure source, readiness to perform.

2. The instrument displays the ability to gather information that would not normally be communicated to the coach and hence, provides information upon which better coaching decisions could be made.

3. Higher positive scores seem to be indicative of better quality performances even though this was not supported in this study.

4. Negative items should be treated as problems and should be counteracted as soon as possible.

5. The pressure scores for a particular individual, coupled with some knowledge of that person, allow for improved pre-competition assessment and predictions of game performance.

6. Positive pressure scores that drop across a team may be indicative of a slump or problem within the team.

7. Individuality of pressure scores was very evident.

Summary

The findings of this investigation did not support any of the "popular" assertions about pressure and performance. It is stated commonly that pressure affects performance, for example, when an athlete can

no longer handle the "pressure", his/her performance is affected adversely. Sherman (1984) and Rushall (1984) hinted that such associations or effects may not exist. This thesis supported that doubt.

At best, pressure is individual in it's occurrence, make-up, and relationship to performance. Group interpretations of scores and items from the Sport Pressure Checklist do not seem to be warranted.

Chapter VI

SUMMARY, CONCLUSIONS and RECOMMENDATIONS

Summary

This study used a self reporting instrument to examine the relationships between aspects of self-perceived pressure prior to games in male and female collegiate basketball players. The research design for this thesis included replicated case-studies and same group analyses.

Pressure was measured in male (N=11) and female (N=12) varsity basketball players during the 1984-1985 G-PAC home games. The instrument employed for the collection of data was the Sport Pressure Checklist (Sherman, 1984). The checklist was completed one half hour prior to practice for the two days before a game, and one and a half hours before each game. Immediately following each game the players completed a game performance evaluation form.

The data were analyzed to determine (a) the consistency of responses of individuals over an extended period of time, (b) possible interactions of pressure sources within the team setting, and (c) the

direct effect of one competitive performance on pressure parameters proceeding another close competitive effort.

Conclusions

1. The Sport Pressure Checklist was found to be a valid, reliable instrument for the measurement of the construct pressure over a four-day period.

2. There was no consistent relationship between pressure and game performance scores over all subjects from both teams. The subgroups of starters and non-starters, or teams did not display any relationships of note.

3. There was no relationship between trends of pressure scores and game performance scores for either team.

4. Over the measurement period of four days for each set of games, the pressure area scores remained highly consistent.

5. Competition preparation was the item that varied noteably within the women's team. Contest difficulty varied noteably in the men's team.

6. The amount, type and source of pressure, was quite individualistic and unique for each subject.

Recommendations

1. This study should be replicated over a longer period of time in order to accurately assess each subject, independent of team analysis.

2. Research strategies for analyzing the data of small teams should be developed.

3. Practical methods for implementing the individual information obtained from the Sport Pressure Checklist should be devised.

4. More studies should use the Sport Pressure Checklist to determine the relationship between pressure and sports performance.

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THE SPORT PRESSURE CHECKLIST

Read this section carefully

Pressure refers to the feelings that an athlete has about having to perform well in a sporting contest. It is influenced by many different factors. A certain amount of pressure is necessary for an athlete to do well. The extra effect on performance that comes from being in an exciting competitive situation is an example of a helpful effect from a source of pressure.

At some competitions there are other persons (e.g., parents, the coach, opponents) or other events (e.g., items printed in a newspaper, preparation disruptions) which suggest something different to what the athlete wants to do. When this happens, the athlete usually would prefer to have these sources of annoyance removed. It may be the athlete's wish that he/she had never become aware of these outside expectations for his/her performance. When events like these annoy an athlete, they are viewed as negative pressures that may serve as worrisome distractors for the competitor.

However, the athlete may be helped in his/her approach to competition. When preparation is going well or others care about the performance and have confidence in him/her, influences of this type may help the athlete in a positive way. These are viewed as positive pressures.

What to do

On the following pages are listed a number of sources of pressure and reasons for competing. What you are being asked to do is consider these sources and determine the way and extent to which they may be affecting you, with regard to the upcoming competition, at this time. When you think about each item you should determine whether it has one of three effects on you:

1. A positive score (1, 2, or 3) indicates that you feel better about competing because the pressure exists.

2. A negative score (-1, -2, or -3) indicates that you feel that the source of pressure bothers you and will not help you to perform well. You would feel better about competing if this pressure did not exist.

3. A zero score (0) means that the source of pressure has no meaning for you in this competition.

If you have any questions about answering this test, ask the person who is administering it to explain what you would like to know.

DEFINITIONS FOR THE SPORT PRESSURE CHECKLIST

These definitions should be read and understood. If there are any that are difficult for you to understand ask your coach to explain them to you. You should learn these meanings so that you do not have to refer to them each time you fill out the checklist.

Parental expectations. What your parents expect you to do in the contest.

What you expect to gain from the competition. There are a number of aims or outcomes (good things, benefits, rewards, etc.) that you expect to receive if you do well in the contest.

Friends' and teammates' expectations. What your friends, inside and outside of your sport, expect of your performance.

How successful you expect to be. How you consider you will perform in the competition.

Press and media expectations. What you have read in the papers or seen or heard reporters or other media persons say about you.

The adequacy of your competition preparation. How you think that what you have done to train and prepare for this competition will affect your performance.

Crowd or audience effects. The crowd, audience, or spectator reaction to you and your competing.

Your need to improve. How much you feel you have to improve your performance in this competition.

Coach expectations. What the coach expects or has set for you to do in the contest.

The anticipated contest difficulty. How you view the level of difficulty of the contest for achieving what you want.

Opponents. How you view the opponents and their effect on what you want to achieve.

Your control over the preparation for the contest. How well you have controlled all the events that you wanted to while preparing for the competition.

Officials' and organizers' actions. The way the organization of the competition and the people in charge affect you.

Your readiness to perform. How ready you are to perform to your best ability.

The competition's importance. How important the competition is for you to achieve some result that you want.

Your goals for the competition. You have set one or more goals or expectations for performing in the competition. These affect you in some way.

Other sources. Write down factors you are aware of that affect how you approach this competition.

HOW TO SCORE THE SPORT PRESSURE CHECKLIST

Positive Pressure Score

Total all the values on the positive side of the scale page. Enter the score on the graph that is provided.

Negative Pressure Score

Total all the values on the negative side of the scale page. Enter the score as a positive number on the graph that is provided.

Internal Pressure Score

Total the absolute values for items 2, 4, 6, 8, 10, 12, 14, 15, and 16. Enter the score on the graph that is provided.

External Pressure Score

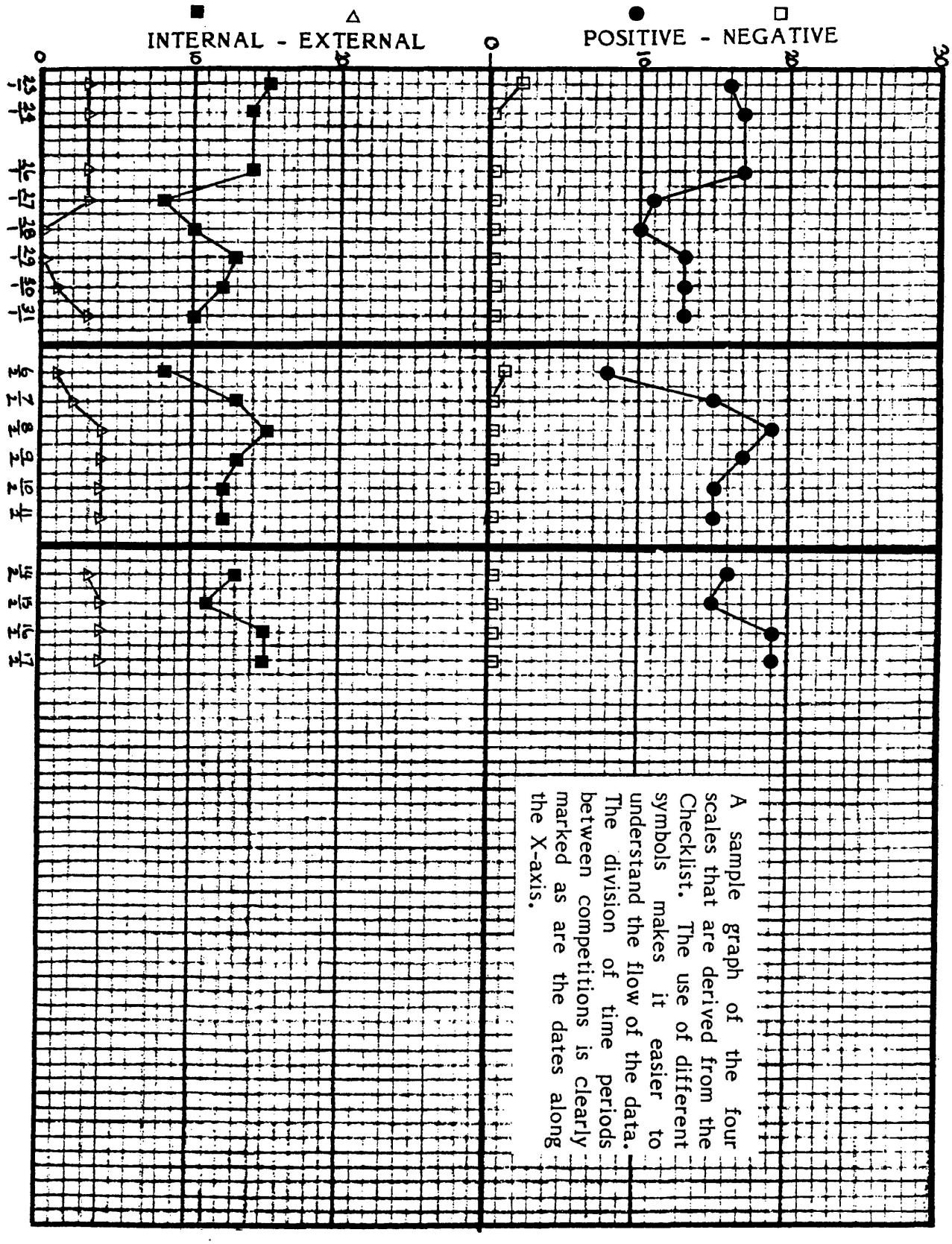
Total the absolute values for items 1, 3, 5, 7, 9, 11, and 13. Enter the score on the graph that is provided.

Note: Combinations of these four basic scores are possible but will be left to another forum to discuss.

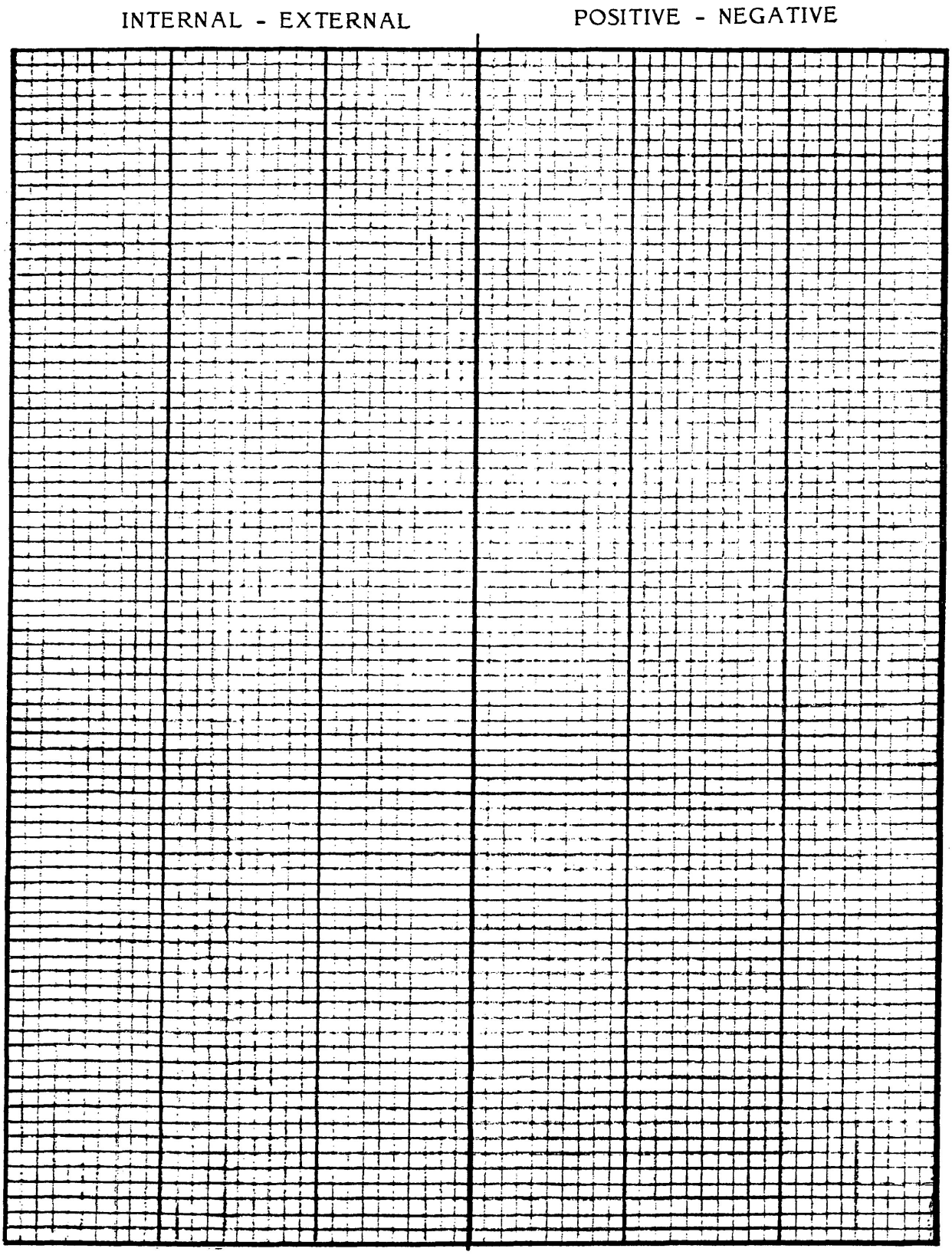
Graphing the Scores

Two sets of graphs are developed. One is for positive and negative scores and the other is for internal and external scores. The user has to determine a range for the scores that are likely to develop and set that range as the bounds for the Y axis of the graph. Along the X axis of the graph, the date of each data gathering session should be recorded with some attention being given to the distances between each entry. After a session of data gathering, such as a seven-day period before a competition, a vertical line should be drawn through the graph to indicate the cessation of the period. A new compilation of information should then be commenced after the delimiting line.

A completed graph is provided as a sample.



A sample graph of the four scales that are derived from the Checklist. The use of different symbols makes it easier to understand the flow of the data. The division of time periods between competitions is clearly marked as are the dates along the X-axis.


INTERNAL - EXTERNAL
POSITIVE - NEGATIVE

INTERPRETING INDIVIDUAL ITEM RESPONSES

The analysis of individual items in the checklist also reveals situational information concerning the athlete. Individual item responses should be examined and compared to previous responses. A number of factors can be discovered. These include:

1. Responses of +3 would indicate that the item is highly facilitatory and could be deemed a strong motivator.

2. Responses of -3 would indicate that the item may be causing a considerable problem for the athlete and action may be necessary to alleviate the inhibitory influence.

3. Responses of 0 that change to either a positive or negative score may indicate important factors for the competitor which normally do not exist, that is, they are peculiar to the particular competition. The coach may have to act to alleviate negatively scored sources of influence.

4. Day-to-day score changes for individual pressure items may indicate significant features and alterations in the pre-competition appraisals of athletes. Such indications could signal a need for some coaching interventions to produce a better or the best form of competition preparation for the athlete.

5. Competition-to-competition score comparisons for each item may assist in discovering preferred levels of pressure.

6. The inclusion of "other sources" in the checklist items, provides an opportunity for athletes to add any other self-perceived pressures that may unexpectedly arise.

7. Day-to-day score changes for individual pressure items may or may not be due to the same factors for the individual before different competitions. This would yield an understanding of how consistent or inconsistent the athlete is under various competitive circumstances.

It is suggested that the checklist be used to collect data for the seven days prior to and including the competition. Each data gathering session should be in the same location at the same time each day.

A sample of completed item analysis log is supplied to demonstrate how records can be kept. Two log sheets for this purpose are attached.

THE SPORT PRESSURE CHECKLIST ITEM ANALYSIS LOG

SOURCE OF INFLUENCE	ITEM SCORE															
Date	23/1	24/1	26/1	27/1	28/1 AFTER COMP.	29/1 AFTER COMP	30/1	6/2	7/2	8/2	9/2	10/2	11/2			
Parents	2	2	2	2	0	-	1	1	2	2	2	2	2			
What is to be gained	1	2	2	(-)	1	2	1	1	2	2	1	2	(1)			
Friends and teammates	1	1	1	1	-	-	-	-	-	1	1	1	1			
Expectation for success	2	1	1	1	1	1	1	-1	1	(2)	2	1	1			
Press and media	-	-	-	-	-	-	-	-	-	-	-	-	-			
Competition preparation	2	3	3	(2)	2	2	2	1	2	2	2	2	2			
Spectators	-	-	-	-	-	-	-	-	-	-	-	-	-			
Need to improve	-1	1	1	1	-	1	1	1	2	2	2	(1)	1			
Coach expectations	-	-	-	-	-	-	-	-	-	1	1	1	1			
Contest difficulty	-1	1	1	-	-	-	-	-	-	-	-	-	-			
Opponents	-	-	-	-	-	-	-	-	-	-	-	-	-			
Control over preparation	3	(2)	2	(1)	1	2	2	2	1	2	2	2	3			
Officials and organizers	-	-	-	-	-	-	-	-	-	-	-	-	-			
Readiness to perform	2	2	2	(1)	3	3	1	2	2	2	2	2	2			
Competition importance	2	(1)	1	1	1	1	2	-	-	1	1	1	1			
Goals	1	1	1	1	1	1	2	-	2	2	(1)	1	1			
Other sources	-	-	-	-	-	-	-	-	-	-	-	-	-			

What To Do: Record each daily score in the column for that day. Highlight any score that changes noticeably from previous days so that one can tell the sources of pressure that are increasing in their influence.

A sample completed Item Analysis Log. Each day-to-day change that is important is circled. The pattern of the athlete's responding indicates the sources of pressure that are perceived by him/her.

THE SPORT PRESSURE CHECKLIST ITEM ANALYSIS LOG

SOURCE OF INFLUENCE	ITEM SCORE														
Date															
Parents															
What is to be gained															
Friends and teammates															
Expectation for success															
Press and media															
Competition preparation															
Spectators															
Need to improve															
Coach expectations															
Contest difficulty															
Opponents															
Control over preparation															
Officials and organizers															
Readiness to perform															
Competition importance															
Goals															
Other sources															

What To Do: Record each daily score in the column for that day. Highlight any score that changes noticeably from previous days so that one can tell the sources of pressure that are increasing in their influence.

THE SPORT PRESSURE CHECKLIST

DAILY ANSWER SHEETS

THE SPORT PRESSURE CHECKLIST

SOURCE OF INFLUENCE	Very Negative	Negative	Slightly Negative	No Influence	Slightly Positive	Positive	Very Positive
	-3	-2	-1	0	1	2	3
Parental expectations	____	____	____	____	____	____	____
What you expect to gain from the competition	____	____	____	____	____	____	____
Friends' and teammates' expectations	____	____	____	____	____	____	____
How successful you expect to be	____	____	____	____	____	____	____
Press and media expectations	____	____	____	____	____	____	____
Your competition preparation	____	____	____	____	____	____	____
Crowd or audience effects	____	____	____	____	____	____	____
Your need to improve	____	____	____	____	____	____	____
Coach expectations	____	____	____	____	____	____	____
The anticipated contest difficulty	____	____	____	____	____	____	____
Opponents	____	____	____	____	____	____	____
Your control over the preparation for the contest	____	____	____	____	____	____	____
Officials' and organizers' actions	____	____	____	____	____	____	____
Your readiness to perform	____	____	____	____	____	____	____
The competition's importance	____	____	____	____	____	____	____
Your goals for the competition	____	____	____	____	____	____	____
Other sources.....	____	____	____	____	____	____	____

SCORE Internal _____ External _____ Negative _____ Positive _____

Date:..... Event:..... Result:.....

Appendix B

Women's Item by Item Reliability Correlations

1.	0.9734 **	2.	1.000 **	3.	0.7632 *
4.	0.7184 *	5.	1.000 **	6.	0.7679 *
7.	0.9548 **	8.	0.7632 *	9.	0.9524 **
10.	0.8030 *	11.	0.9507 *	12.	0.6848 *
13.	0.5965	14.	0.8699 *	15.	1.000 **
16.	0.8947 **				

Men's Item by Item Reliability Correlations

1.	0.7620 *	2.	0.7350 *	3.	0.7370 *
4.	0.7071 *	5.	0.9177 *	6.	0.8165 *
7.	0.7184 *	8.	1.000 **	9.	1.000 **
10.	0.9546 **	11.	1.000 **	12.	0.9000 **
13.	0.3571	14.	0.8238 *	15.	0.9546 **
16.	1.000 **				

n=9

df=7

Significant to p .05 *

Significant to p .001 **

Pearson Correlation of Pressure Areas correlated with Game Performance and other Pressure Areas
Men's Team Game #1(Friday)

	NEG	INT	EXT	GAME PERFORMANCE
POS	-.5556	.9330*	.8625*	.0585
NEG	.....	-.3405	-.3222	-.1429
INT	.....	.....	.7092*	-.1805
EXT	.....	.....	.....	.3317

N=9 for the four pressure areas.
N=8 for game performance correlation
*=P>.05

Pearson Correlation of Pressure Areas correlated with Game Performance and other Pressure Areas
Men's Team Game #3(Friday)

	NEG	INT	EXT	GAME PERFORMANCE
POS	-.6298*	.9295*	.9196*	-.2699
NEG	.....	-.3502	-.3719	.3536
INT	.....	.....	.8748*	-.3828
EXT	.....	.....	.....	-.0508

N=11 for the four pressure areas
N=7 for game performance correlation
*=P>.05

Pearson Correlation of Pressure Areas correlated with Game Performance and other Pressure Areas
Men's Team Game #5(Friday)

	NEG	INT	EXT	GAME PERFORMANCE
POS	-.3640	.9707*	.8856*	.1548
NEG	.....	-.2019	-.5449*	-.2887
INT	.....	.....	.7503*	.0516
EXT	.....	.....	.....	.3117

N=11 for the four pressure areas
N=9 for game performance correlation
*=P>.05

Pearson Correlation of Pressure Areas correlated with Game Performance and other Pressure Areas
Men's Team Game #7(Friday)

	NEG	INT	EXT	GAME PERFORMANCE
POS	-.2999	.9571*	.8222*	-.6131
NEG	.....	-.2014	.0325	.4151
INT	.....	.....	.6788*	-.5033
EXT	.....	.....	.....	-.5193

N=11 for the four pressure areas
N=8 for game performance correlation
*=P>.05

Pearson Correlation of Pressure Areas correlated with Game Performance and other Pressure Areas
Men's Team Game #2(Saturday)

	NEG	INT	EXT	GAME PERFORMANCE
POS	-.5067	.9903*	.9644*	-.0157
NEG	.....	-.4717	-.4587	.2182
INT	.....	.....	.9209*	-.0914
EXT	.....	.....	.....	.1471

N=9 for the four pressure areas
N=8 for game performance correlation
*=P>.05

Pearson Correlation of Pressure Areas correlated with Game Performance and other Pressure Areas
Men's Team Game #4(Saturday)

	NEG	INT	EXT	GAME PERFORMANCE
POS	-.6652*	.9623*	.9459*	.5042
NEG	.....	-.4830	-.6565*	-.4465
INT	.....	.....	.8469*	.4551
EXT	.....	.....	.....	.4747

N=11 for the four pressure areas
N=10 for game performance correlation
*=P>.05

Pearson Correlation of Pressure Areas correlated with Game Performance and other Pressure Areas
Men's Team Game #6(Saturday)

	NEG	INT	EXT	GAME PERFORMANCE
POS	-.4637	.9769*	.9604*	.0642
NEG	.....	-.2939	-.5980*	-.5276
INT	.....	.....	.8819*	-.0151
EXT	.....	.....	.....	.1120

N=11 for the four pressure areas
N=9 for game performance correlation
*=P>.05

Pearson Correlation of Pressure Areas correlated with Game Performance and other Pressure Areas
Men's Team Game #8(Saturday)

	NEG	INT	EXT	GAME PERFORMANCE
POS	-.4081	.9265*	.8716*	-.5654
NEG	.....	-.2385	-.4399	.7470*
INT	.....	.....	.6280*	-.4047
EXT	.....	.....	.....	-.5647

N=11 for the four pressure areas
N=9 for game performance correlation
*=P>.05

Pearson Correlation of Pressure Areas correlated with Game Performance and other Pressure Areas
Women's Team Game #1(Friday)

	NEG	INT	EXT	GAME PERFORMANCE
POS	-.6112*	.9708*	.8743*	.5140
NEG	.....	-.6652*	-.1892	-.2949
INT	.....	.....	.7616*	.4915
EXT	.....	.....	.....	.4951

N=11 for the four pressure areas
N=8 for game performance correlation
*=P>.05

Pearson Correlation of Pressure Areas correlated with Game Performance and other Pressure Areas
Women's Team Game #3(Friday)

	NEG	INT	EXT	GAME PERFORMANCE
POS	-.5653*	.8901*	.7643*	.4281
NEG	.....	-.5966*	-.0183	-.6025
INT	.....	.....	.4446	.7293*
EXT	.....	.....	.....	-.1327

N=11 for the four pressure areas
N=8 for game performance correlation
*=P>.05

Pearson Correlation of Pressure Areas correlated with Game Performance and other Pressure Areas
Women's Team Game #5(Friday)

	NEG	INT	EXT	GAME PERFORMANCE
POS	- .8273*	.9764*	.9092*	.5506*
NEG	.....	-.8039*	-.5688*	-.7021*
INT	.....	.....	.8342*	.4273
EXT	.....	.....	.....	.4856

N=12 for the four pressure areas
N=12 for game performance correlation
*=P>.05

Pearson Correlation of Pressure Areas correlated with Game Performance and other Pressure Areas
Women's Team Game #7(Friday)

	NEG	INT	EXT	GAME PERFORMANCE
POS	-.5439*	.9569*	.9381*	.3344
NEG	.....	-.3667	-.3349	.2601
INT	.....	.....	.8738*	.3154
EXT	.....	.....	.....	.3613

N=12 for the four pressure areas
N=8 for game performance correlation
*=P>.05

Pearson Correlation of Pressure Areas correlated with Game Performance and other Pressure Areas
Women's Team Game #2(Saturday)

	NEG	INT	EXT	GAME PERFORMANCE
POS	-.5977*	.9276*	.9123*	.1743
NEG	.....	-.3719	-.3412	-.0073
INT	.....	.....	.8093*	.1411
EXT	.....	.....	.....	.2418

N=11 for the four pressure areas.
N=11 for game performance correlation
*=P>.05

Pearson Correlation of Pressure Areas correlated with Game Performance and other Pressure Areas
Women's Team Game #4(Saturday)

	NEG	INT	EXT	GAME PERFORMANCE
POS	-.5600*	.9049*	.8348*	-.0828
NEG	.....	-.4752	-.0971	.1478
INT	.....	.....	.6360*	-.2508
EXT	.....	.....	.....	.1176

N=11 for the four pressure areas
N=9 for game performance correlation
*=P>.05

Pearson Correlation of Pressure Areas correlated with Game Performance and other Pressure Areas
Women's Team Game #6(Saturday)

	NEG	INT	EXT	GAME PERFORMANCE
POS	-.6427*	.9458*	.9149*	.3064
NEG	.....	-.5018*	-.4115	.2368
INT	.....	.....	.7998*	.4260
EXT	.....	.....	.....	.3221

N=12 for the four pressure areas
N=11 for game performance correlation
*=P>.05

Pearson Correlation of Pressure Areas correlated with Game Performance and other Pressure Areas
Women's Team Game #8(Saturday)

	NEG	INT	EXT	GAME PERFORMANCE
POS	-.5822	.9378*	.9306*	-.3835
NEG	.....	-.3698	-.4050	.5604
INT	.....	.....	.8210*	-.4364
EXT	.....	.....	.....	-.1687

N=12 for the four pressure areas
N=8 for game performance correlation
*=P>.05

APPENDIX D

Graphic depiction of pressure area scores for each subject over all the G-PAC games.

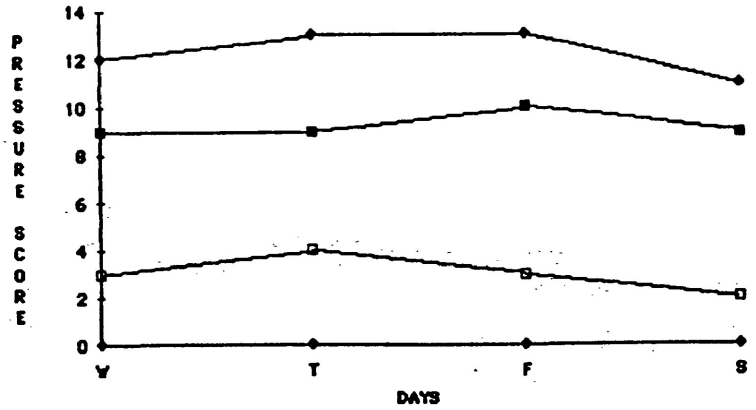
MASTER LEGEND

POSITIVE PRESSURE 

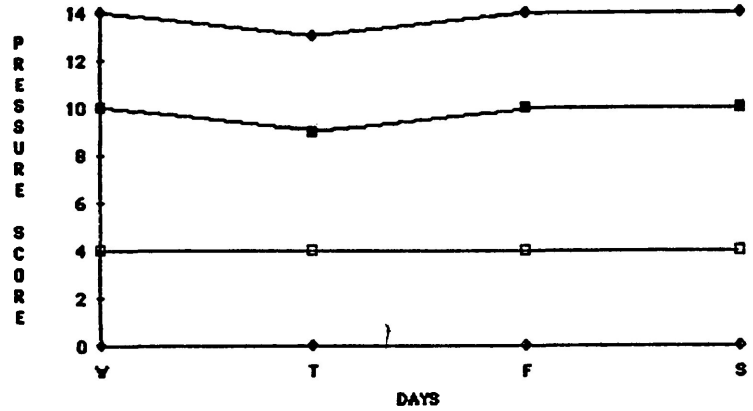
NEGATIVE PRESSURE 

INTERNAL PRESSURE 

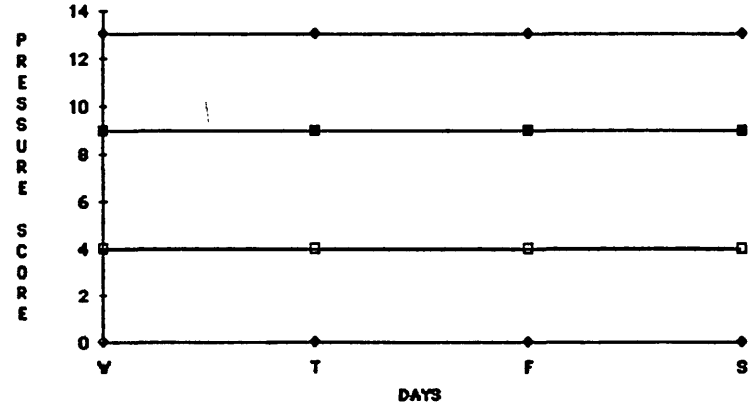
EXTERNAL PRESSURE 



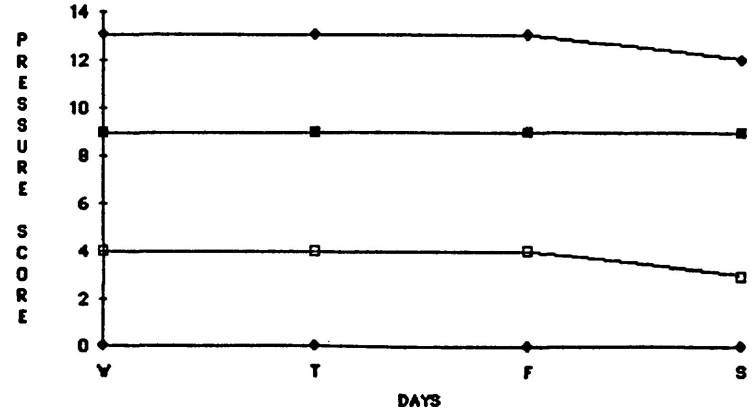
SUBJECT1 GAMES 3&4

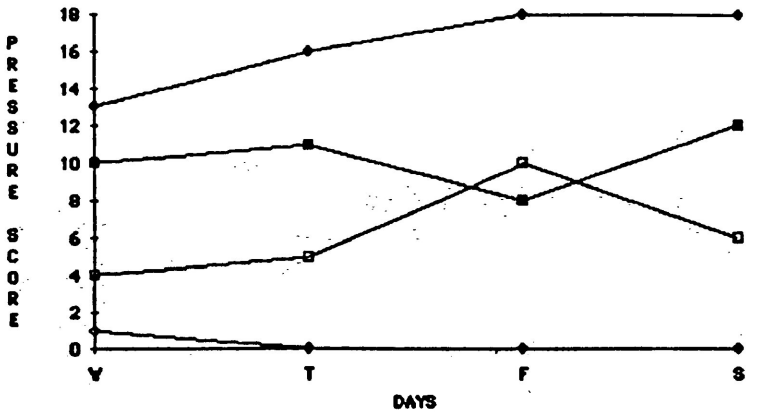


SUBJECT1 GAMES 5&6



SUBJECT1 GAMES 7&8





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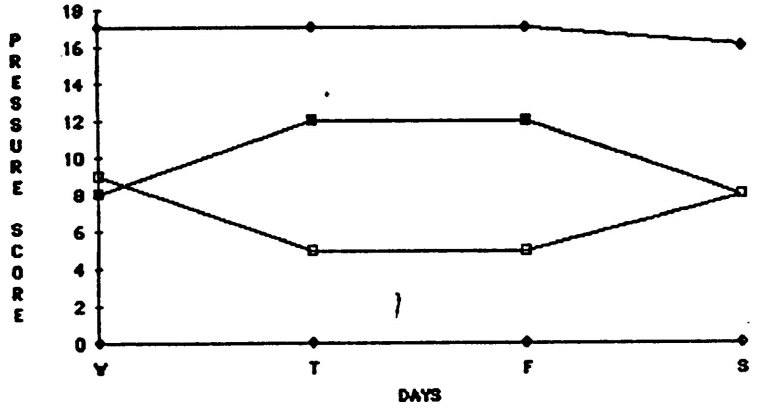

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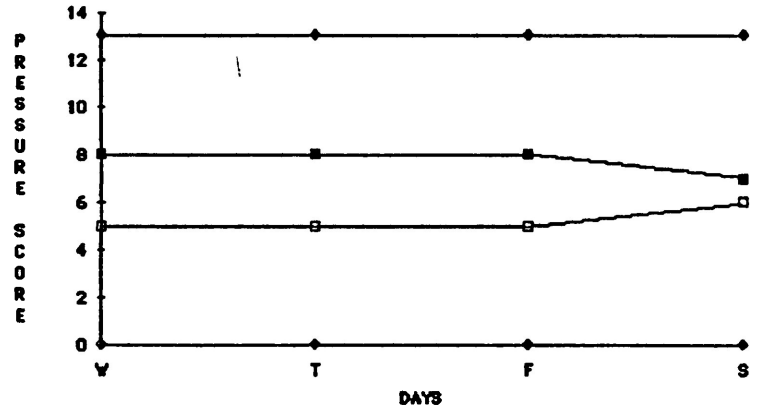
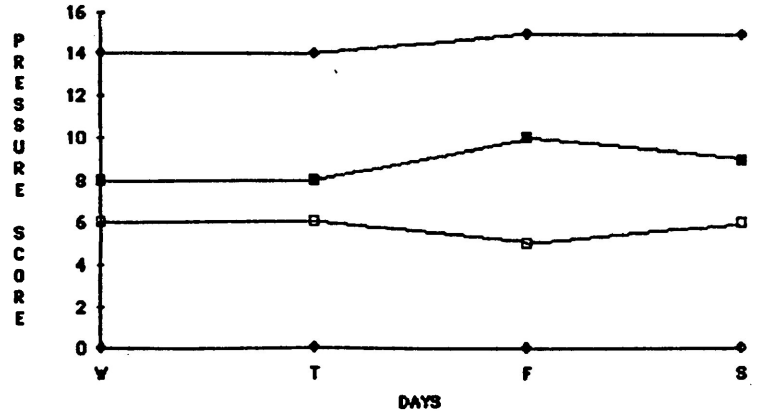


SUBJECT 2 GAMES 7&8



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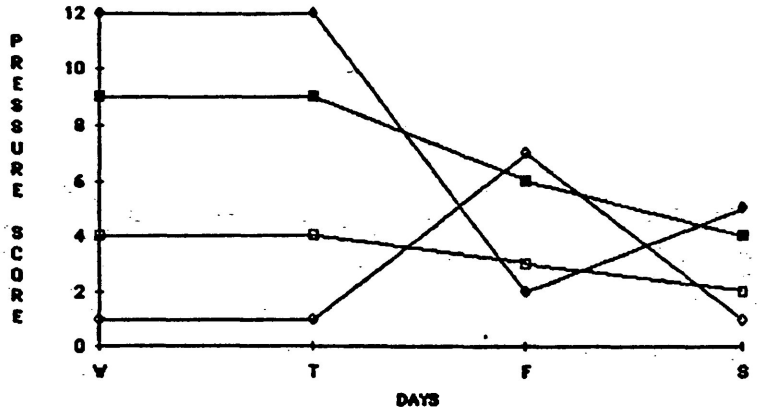
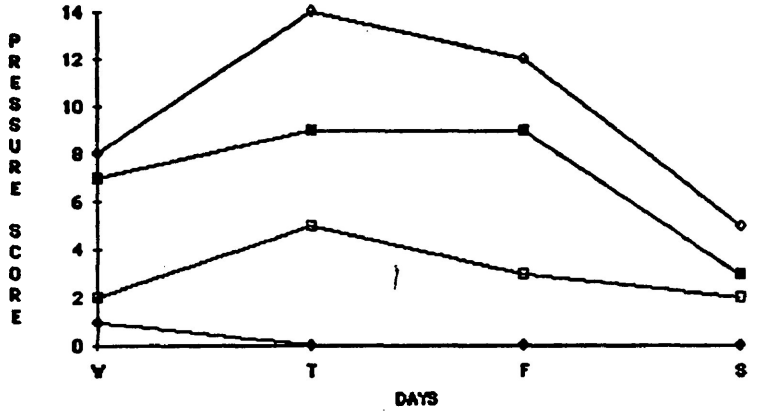


SUBJECT 3 GAMES 3&4



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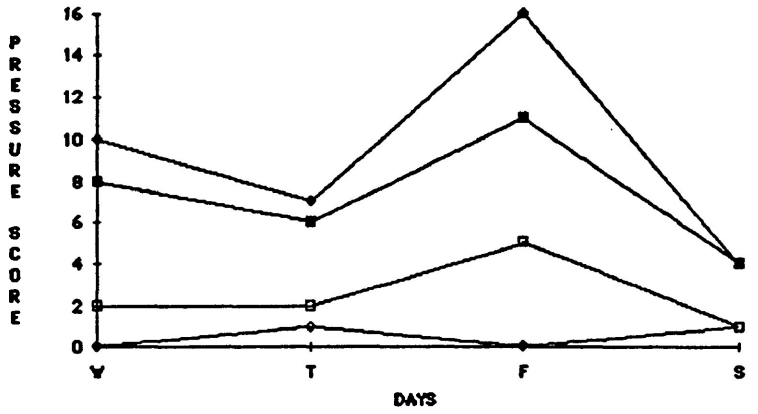
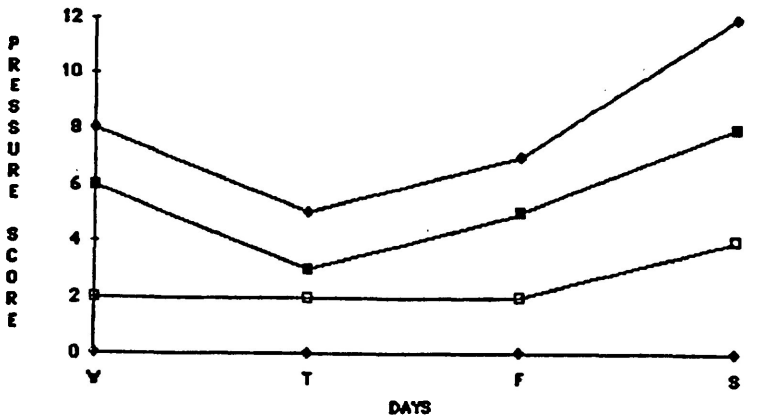


SUBJECT 3 GAMES 7&8



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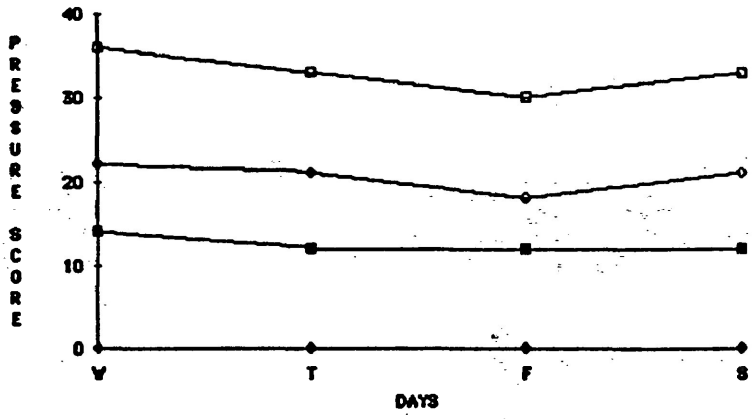

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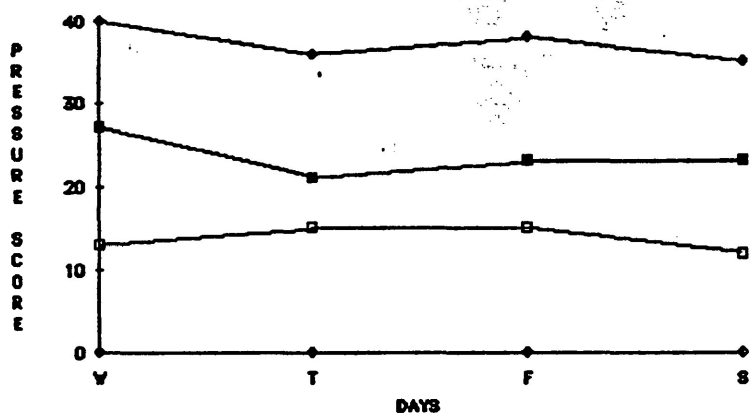

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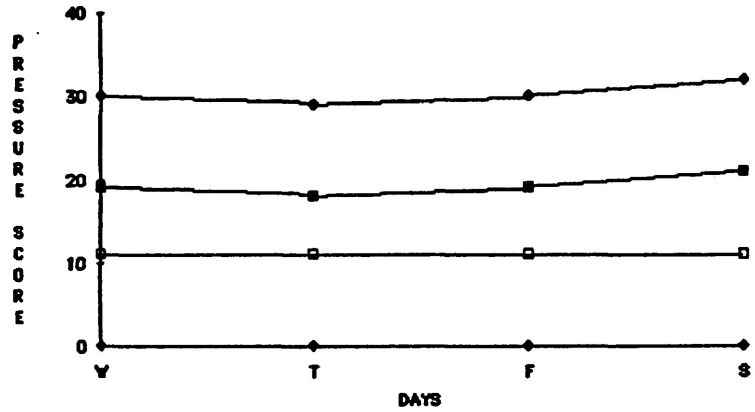
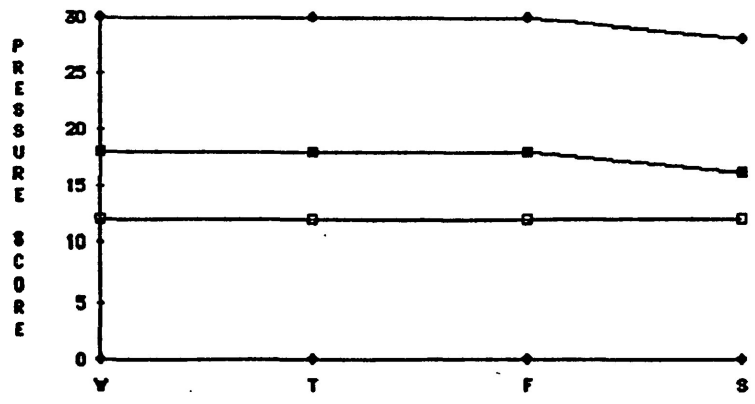
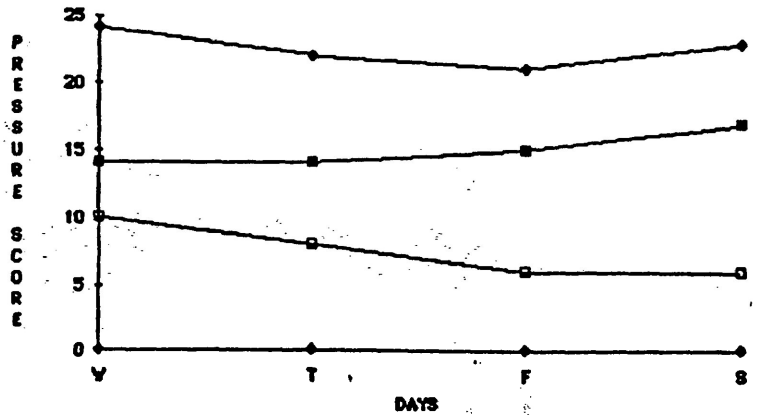


SUBJECT 4 GAMES 7&8





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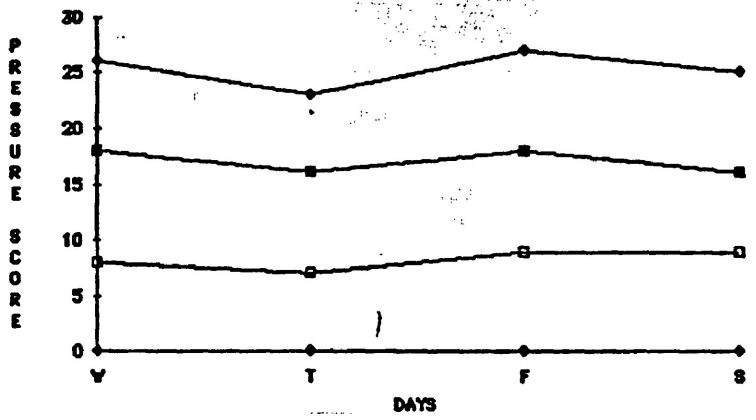

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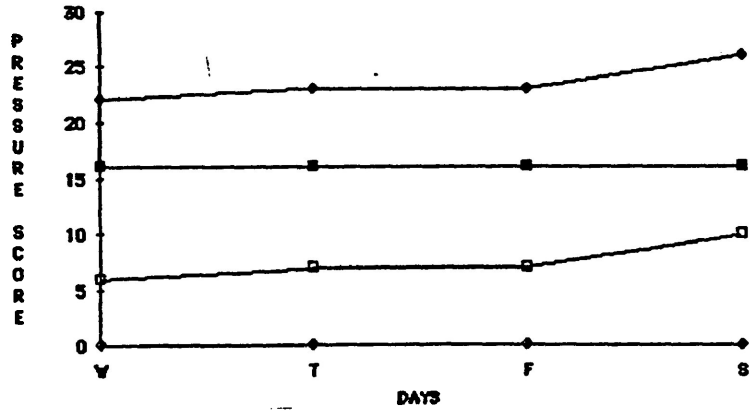
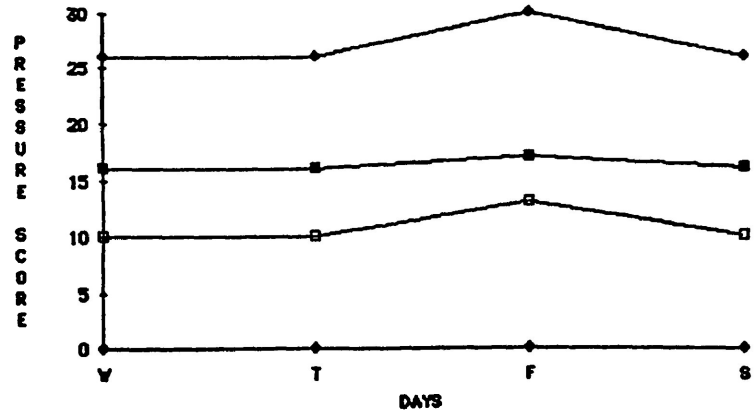
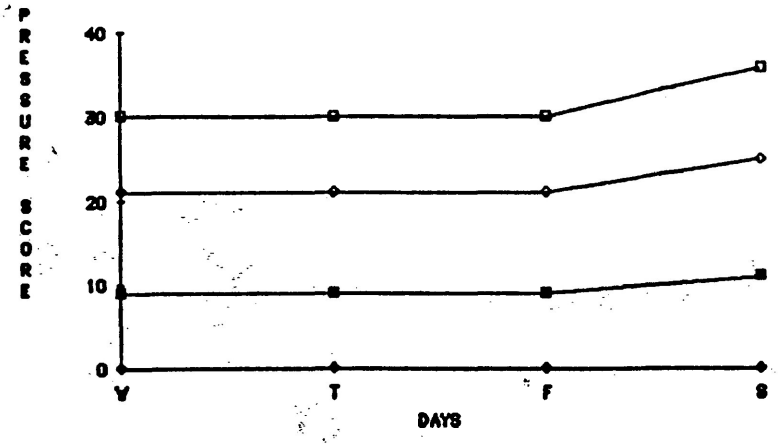


SUBJECT 5 GAMES 7&8





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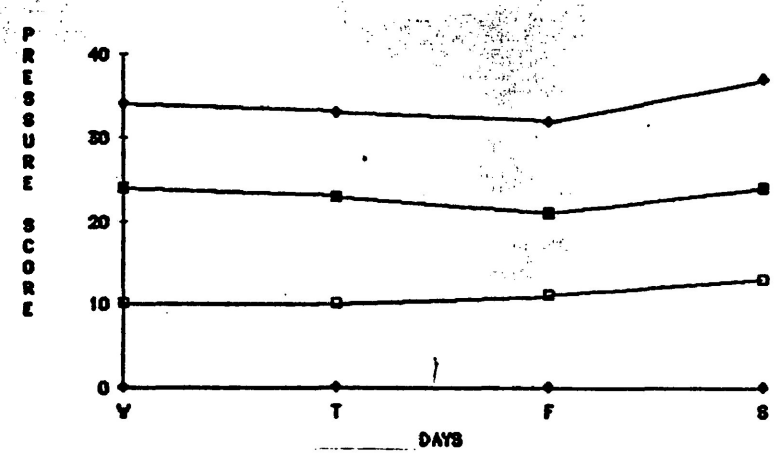
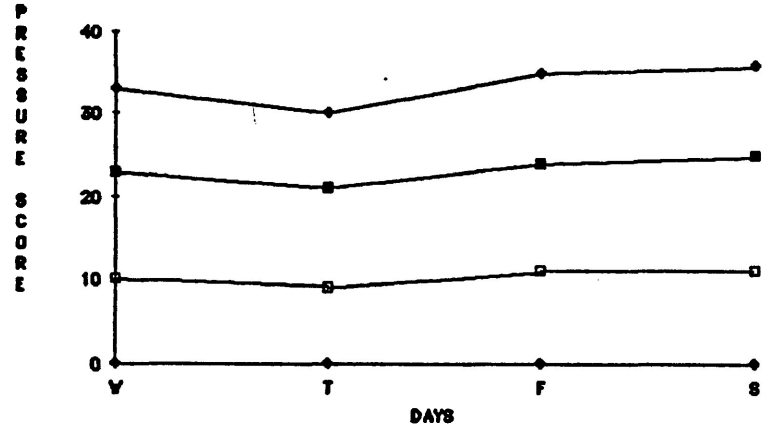
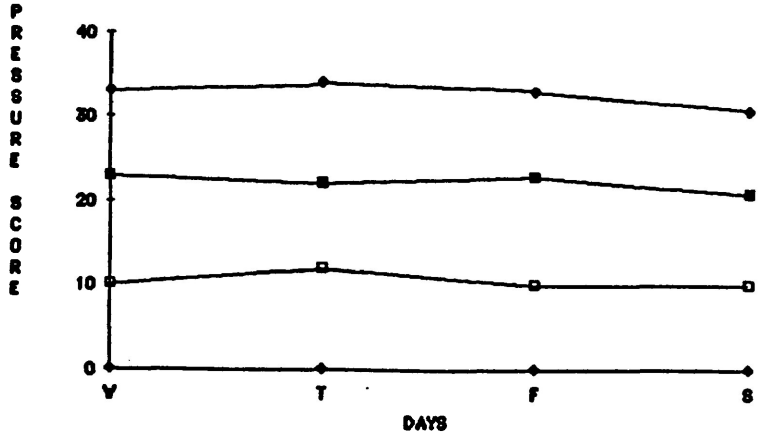
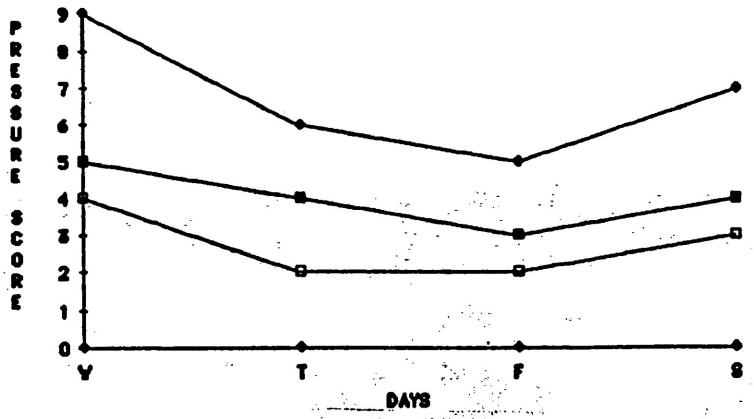


SUBJECT 6 GAMES 5&6



SUBJECT 6 GAMES 7&8





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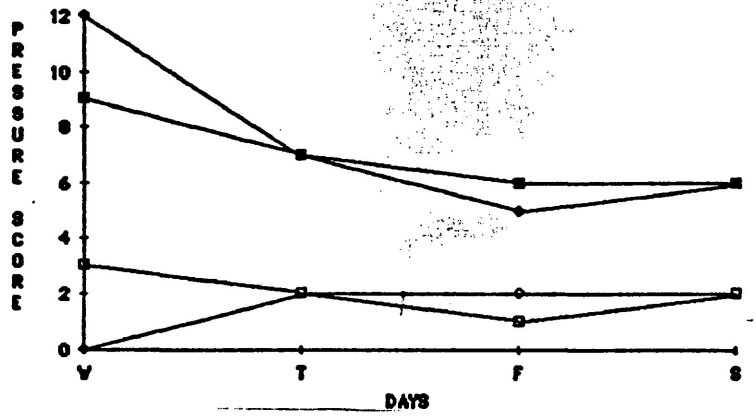

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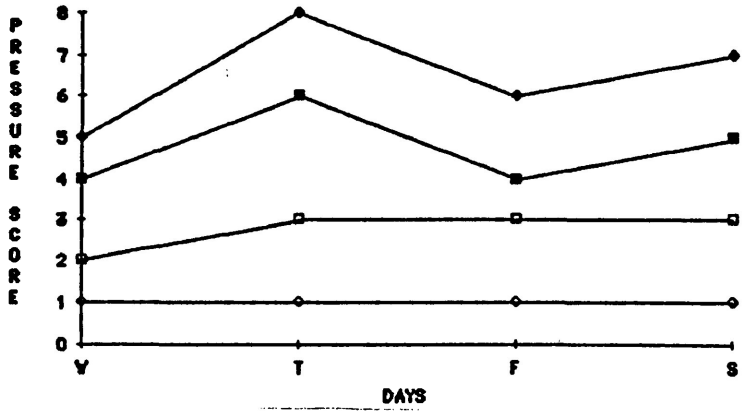

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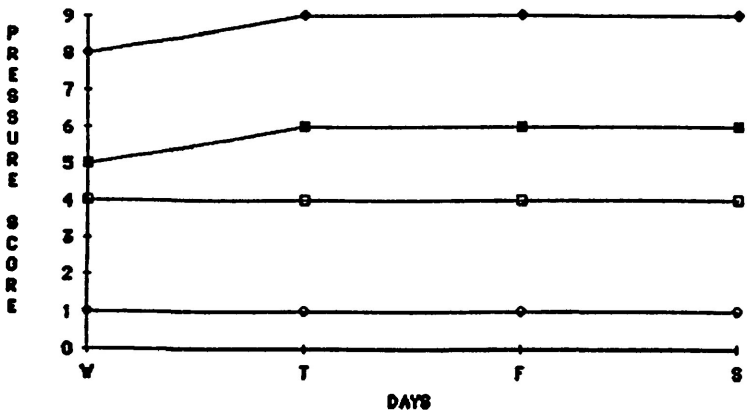
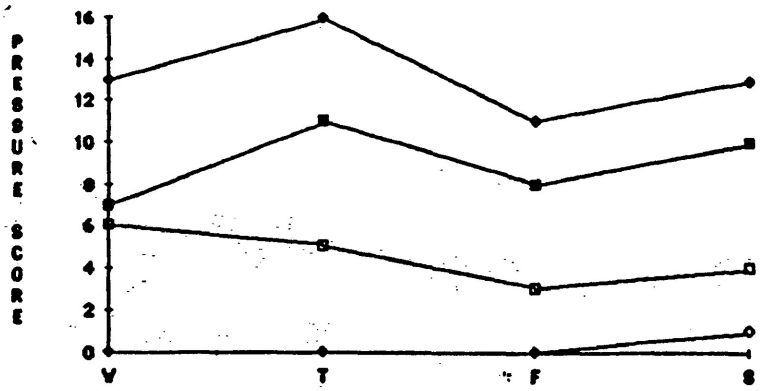
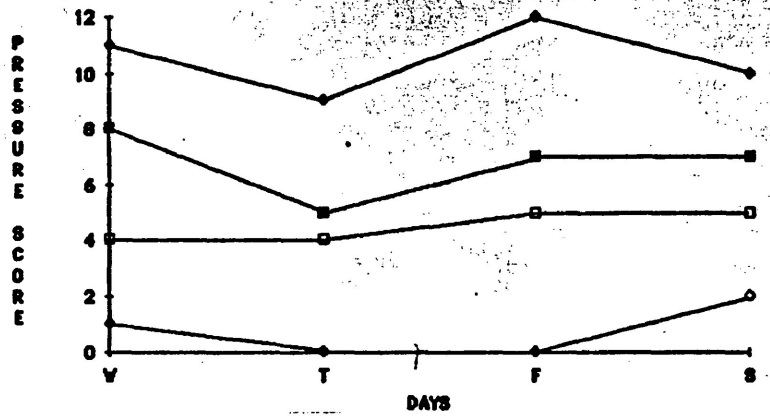
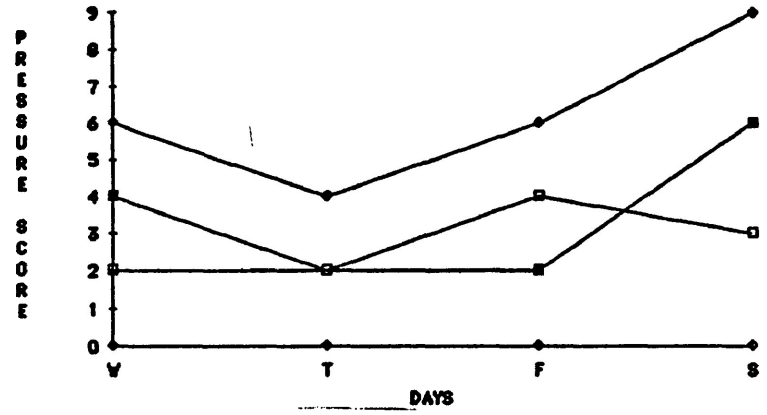




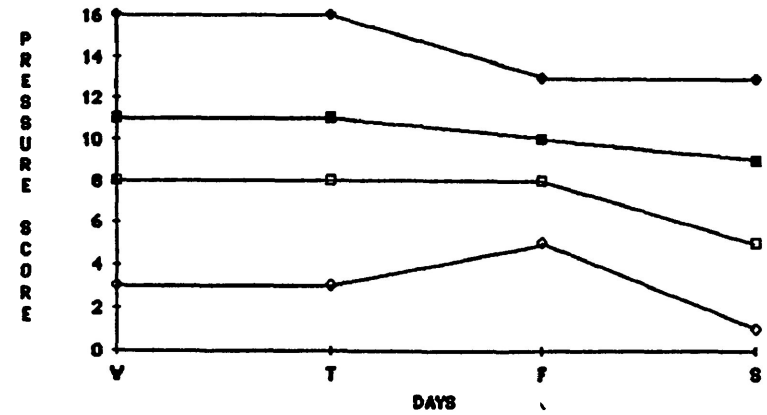
SUBJECT 8 GAMES 3&4



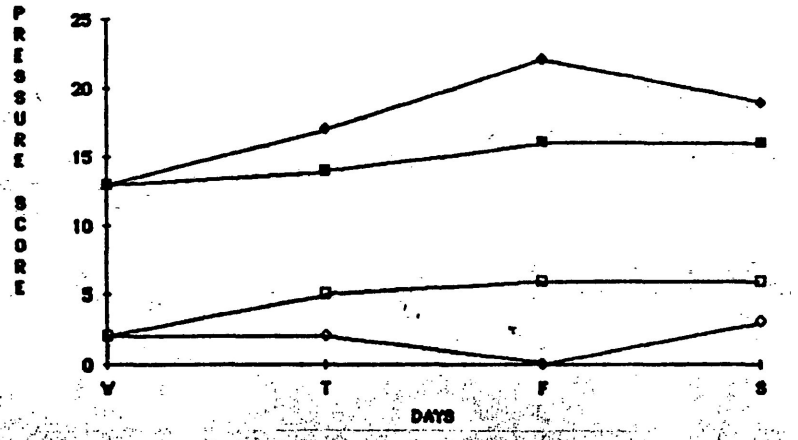
SUBJECT 8 GAMES 5&6



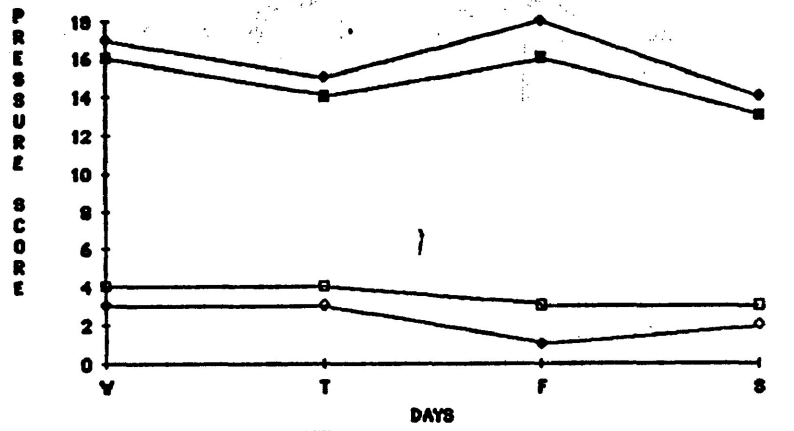
SUBJECT 8 GAMES 7&8



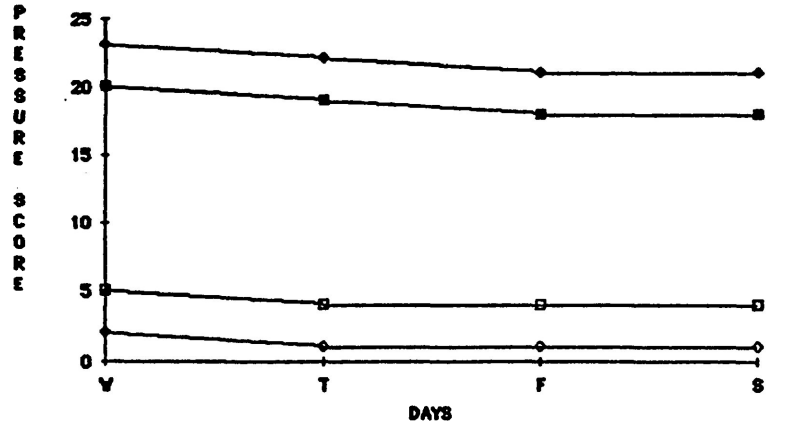
SUBJECT 9 GAMES 3&4



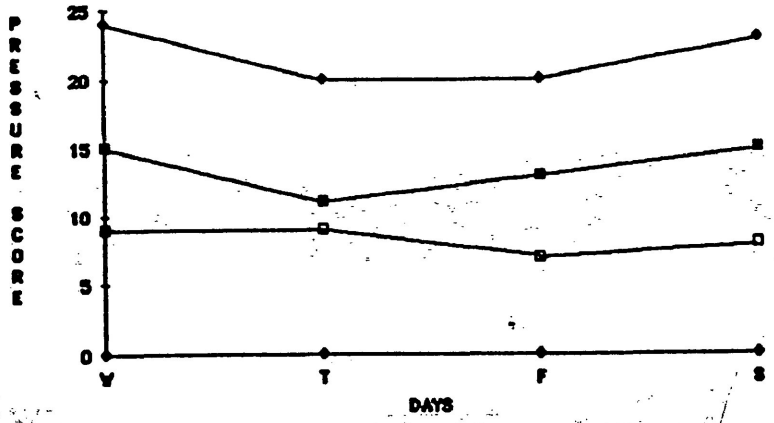
SUBJECT 9 GAMES 5&6



SUBJECT 9 GAMES 7&8



SUBJECT 10 GAMES 1&2



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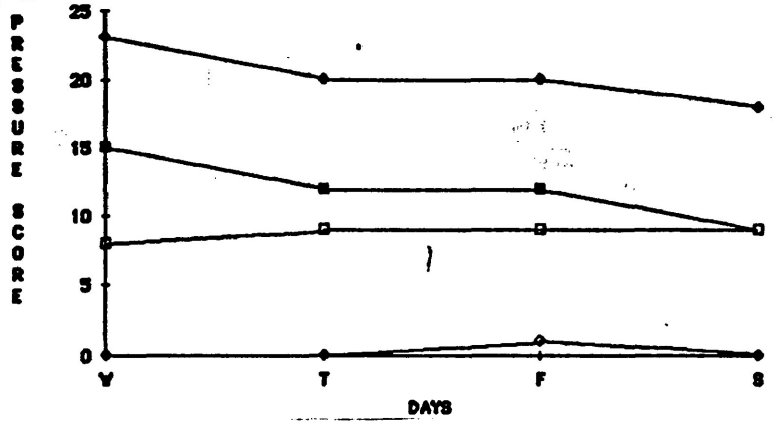

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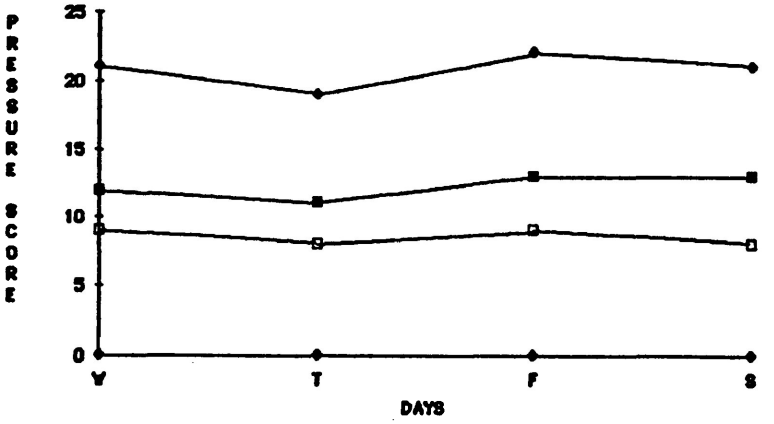

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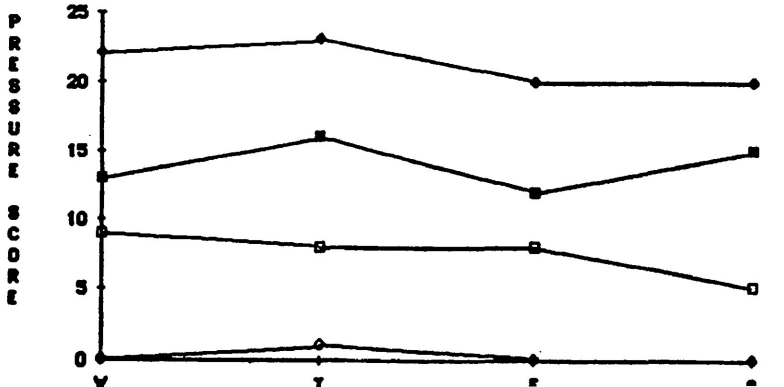

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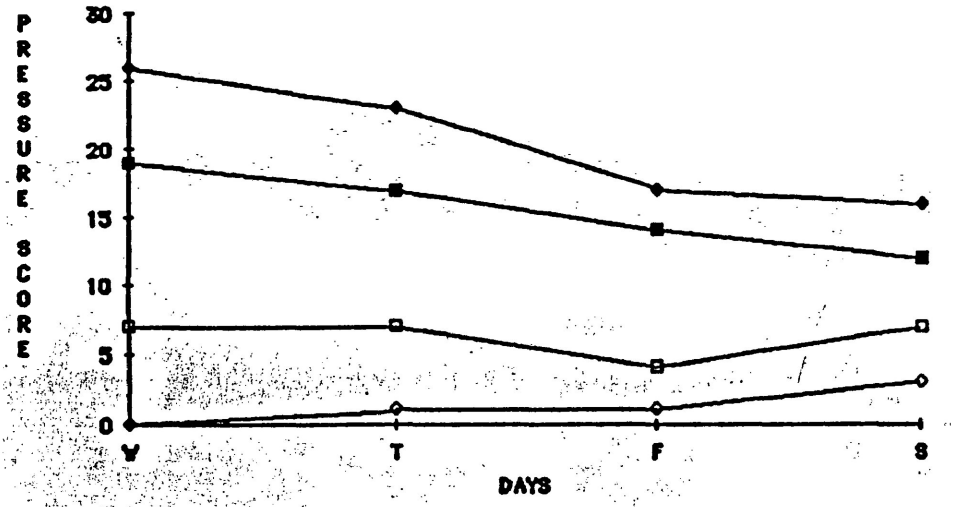

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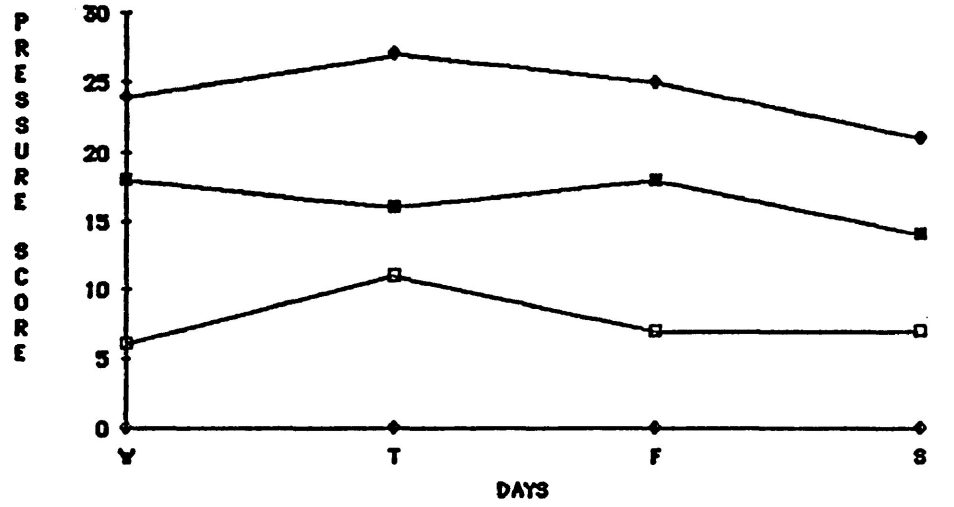

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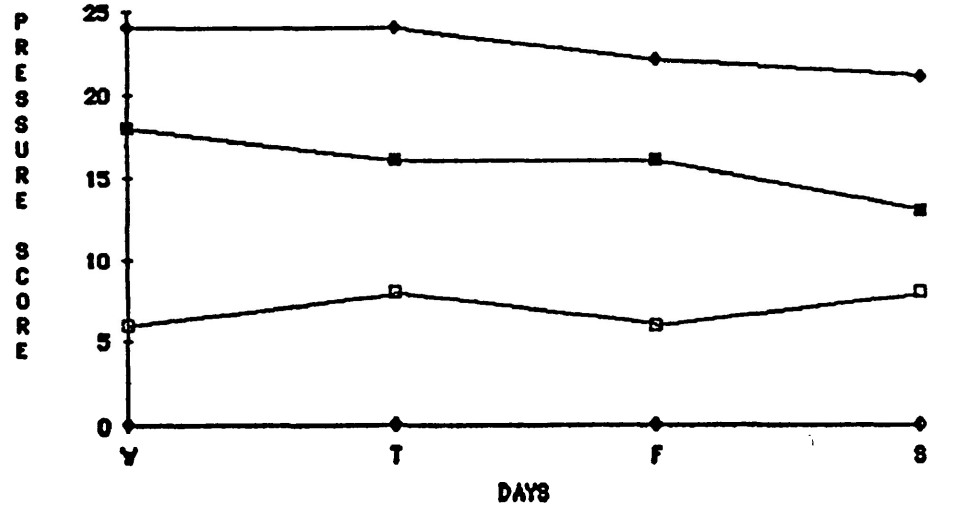

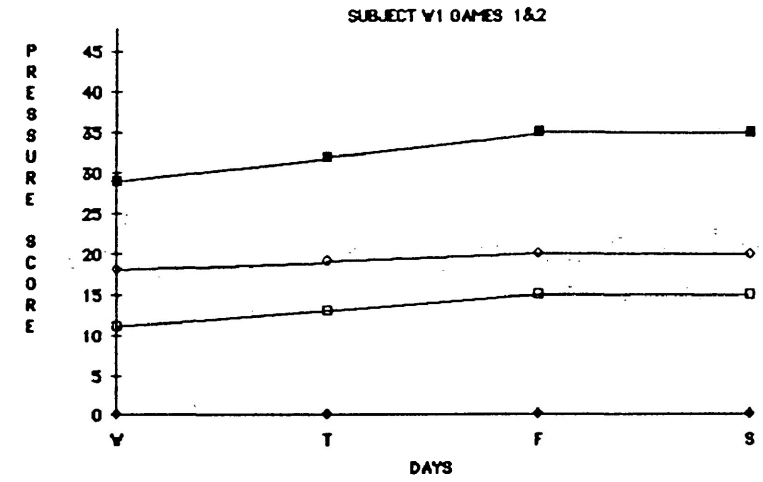
SUBJECT W1 GAMES 1&2
PRESSURE SCORE
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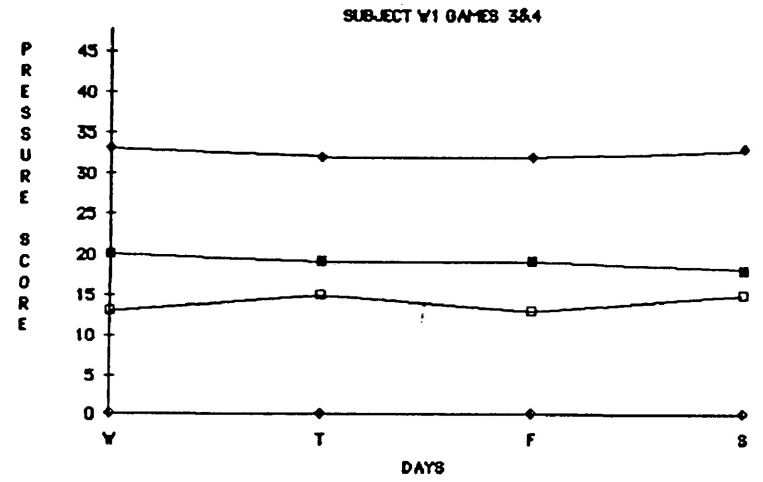
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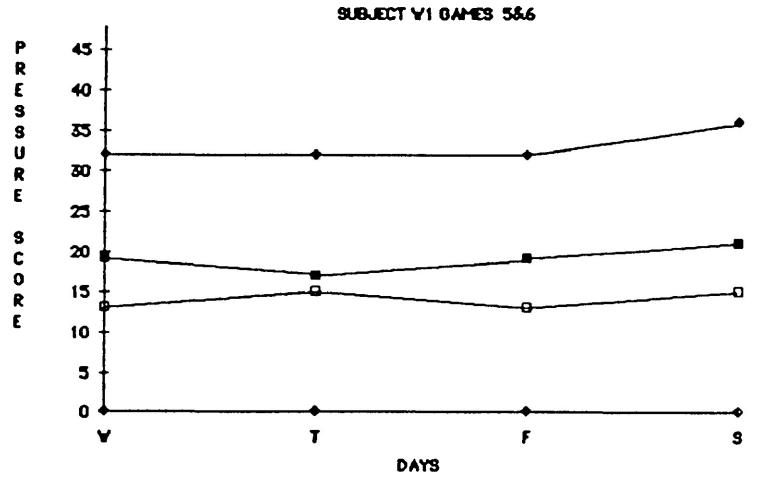
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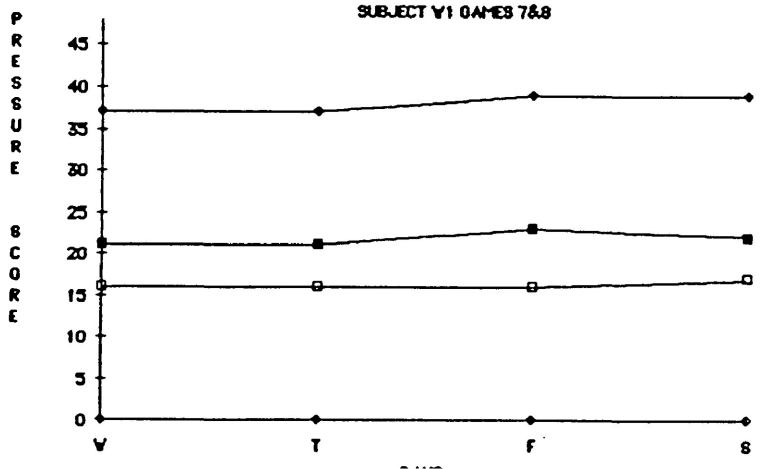
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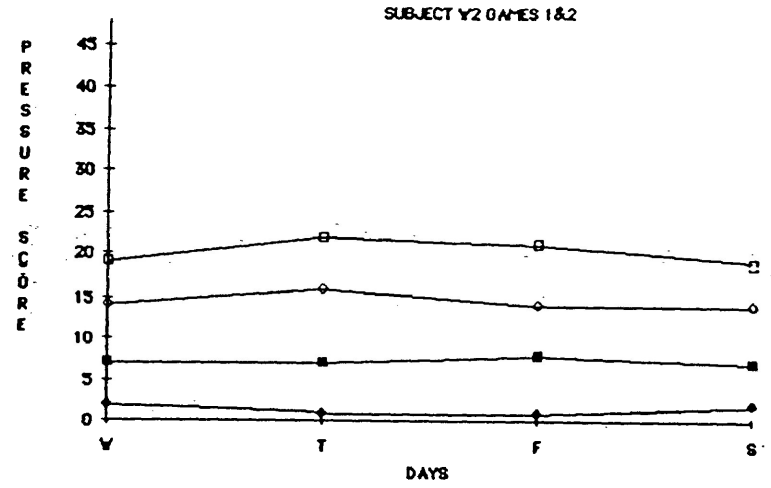
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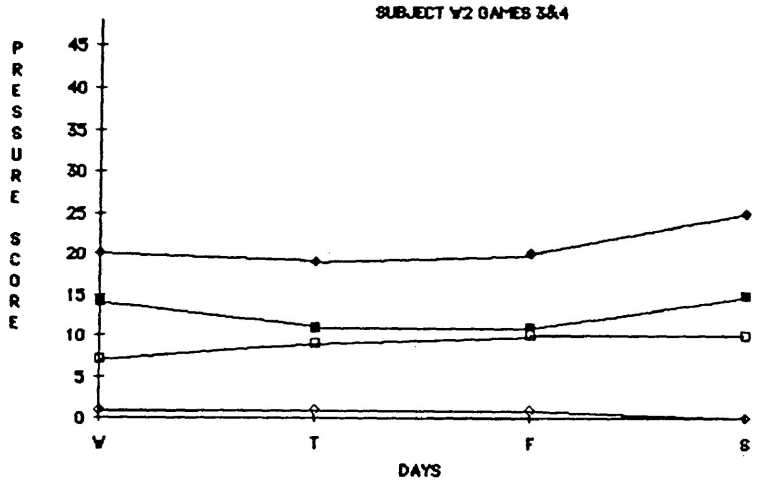
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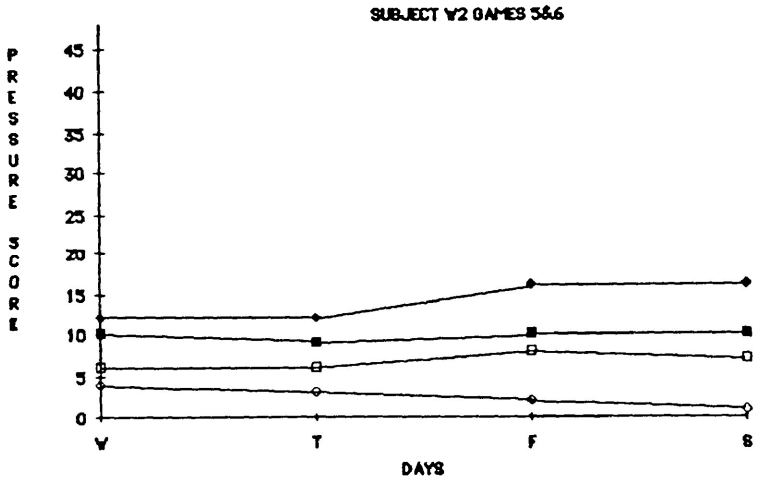
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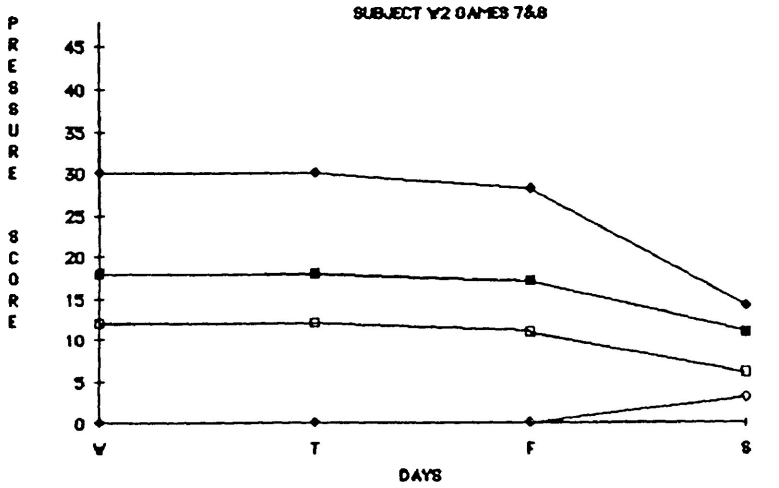
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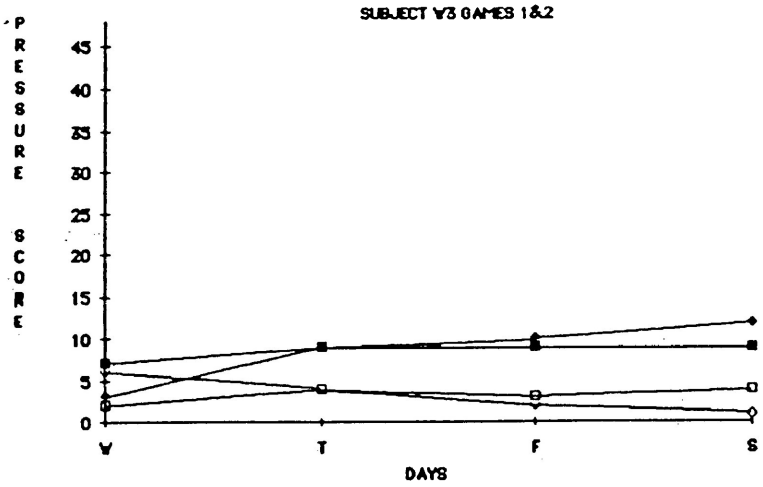
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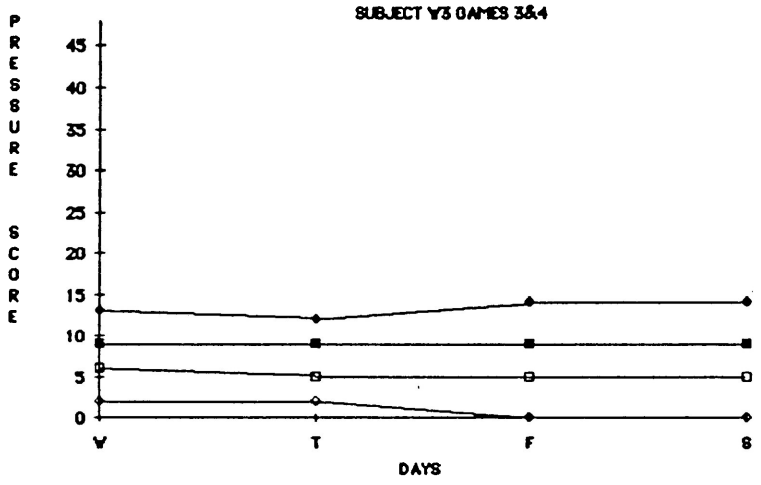
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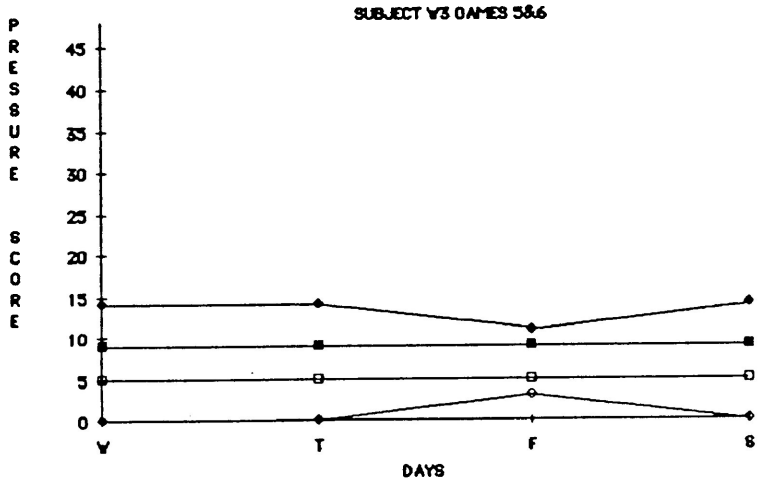
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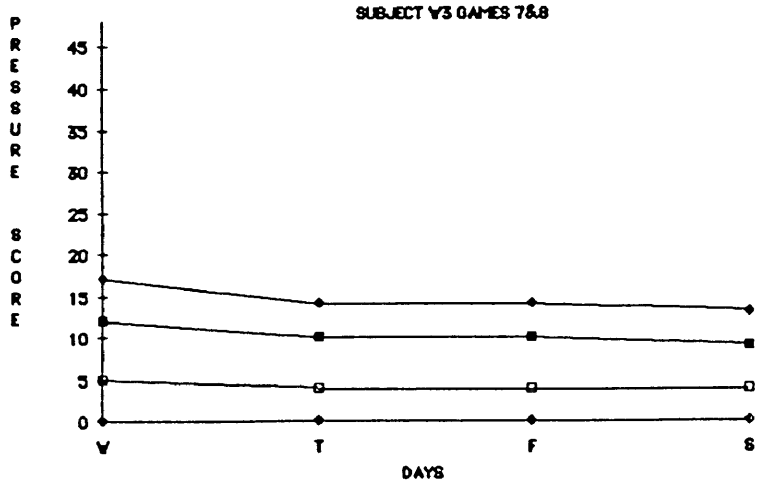
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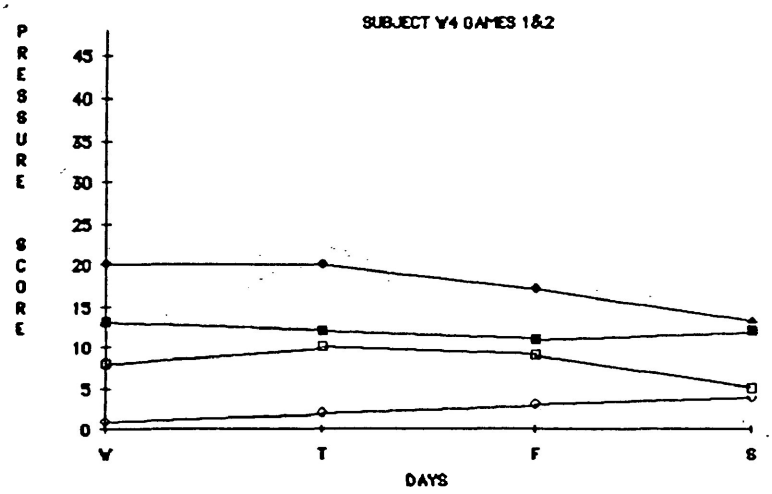
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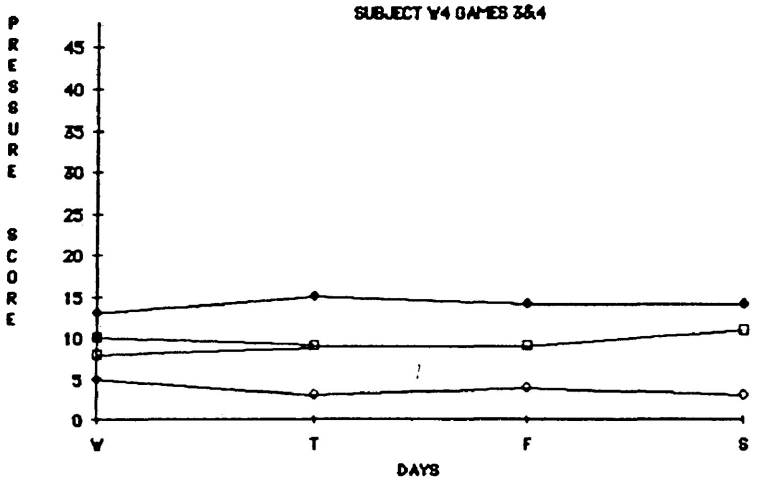
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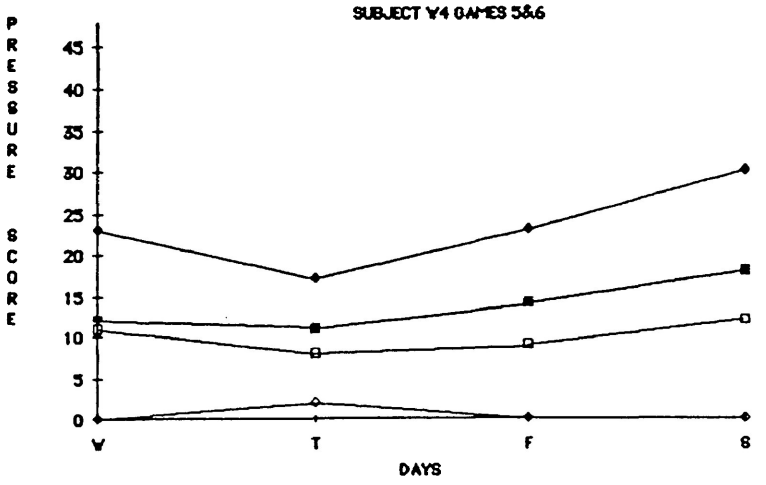
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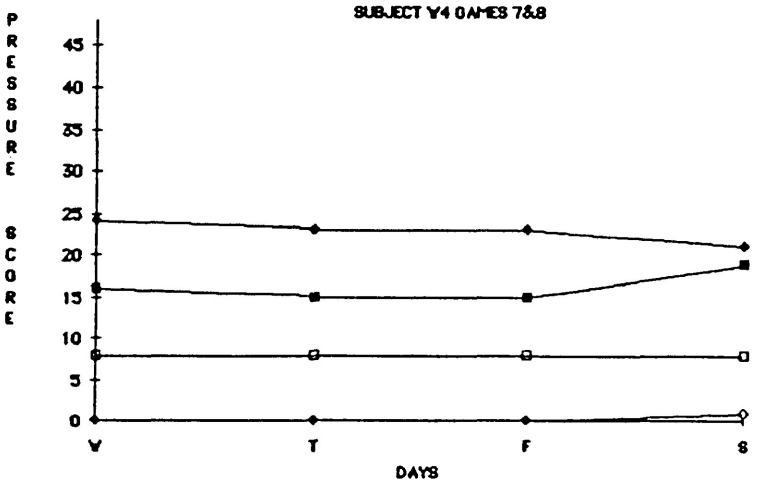
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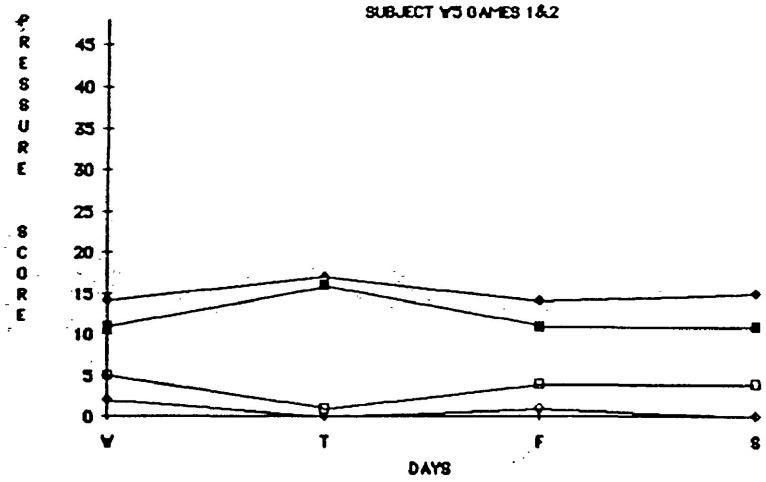
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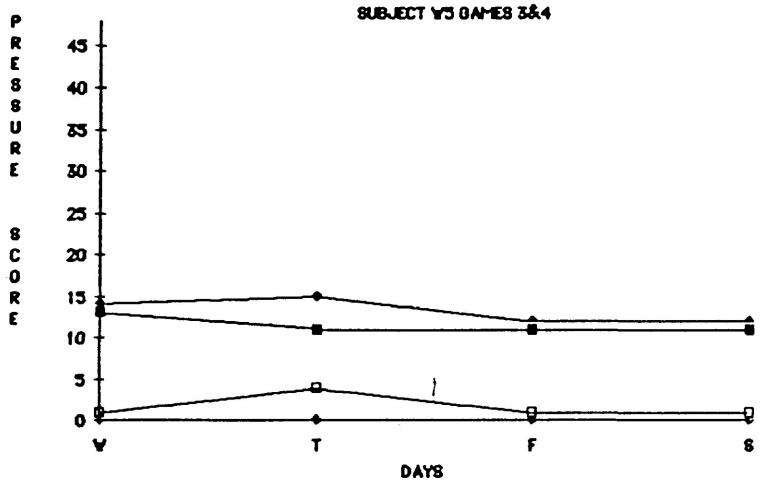
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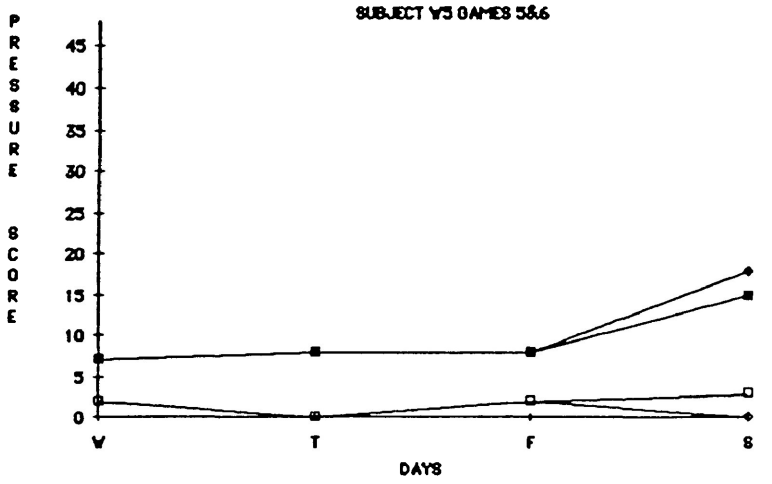
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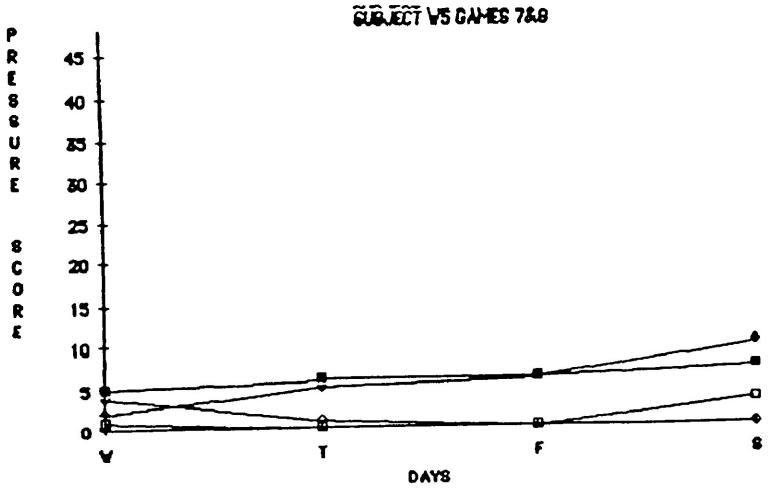
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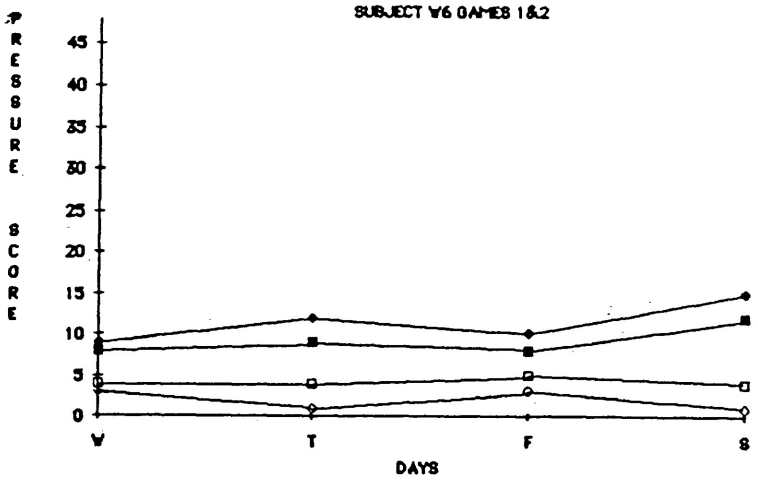
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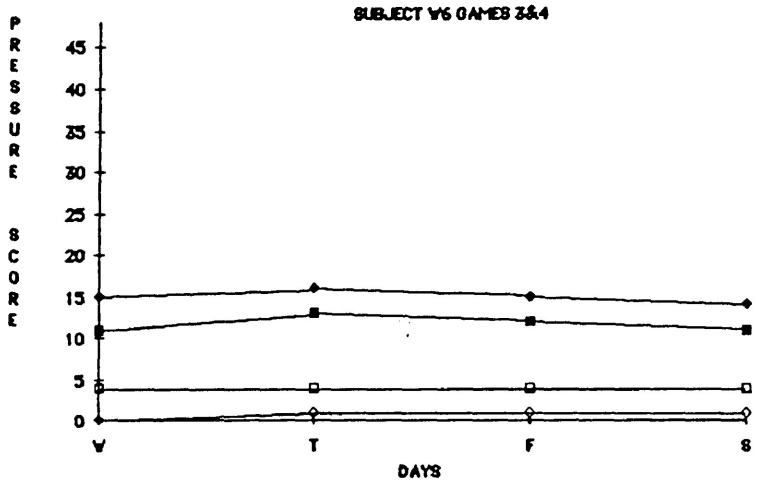
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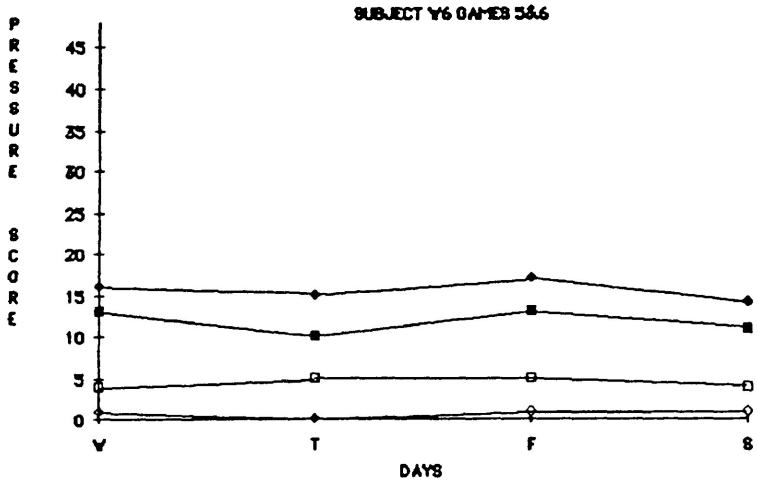
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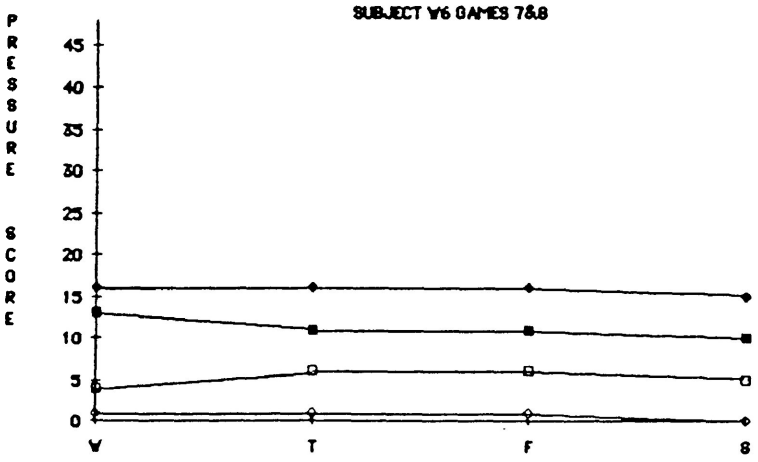
DAYS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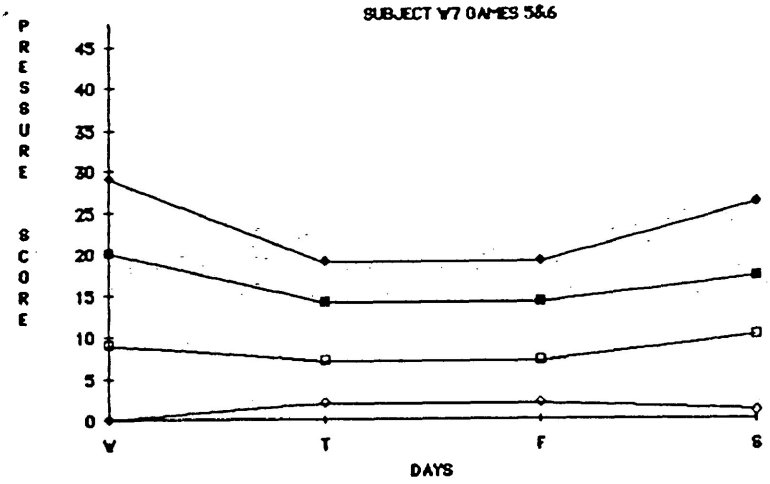
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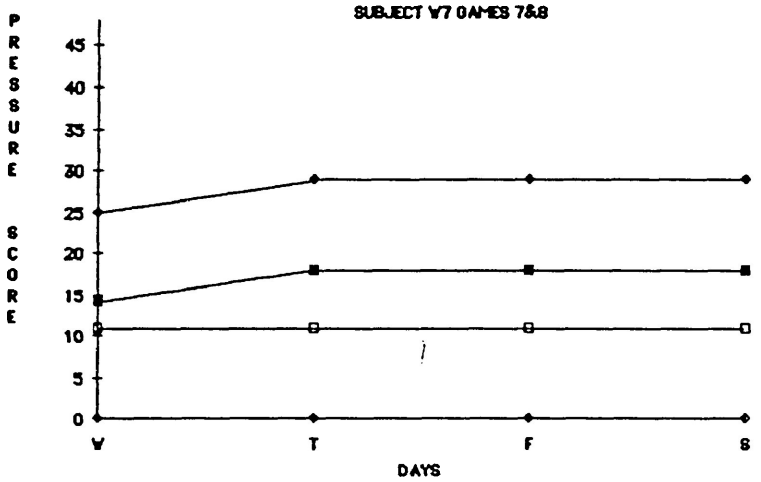
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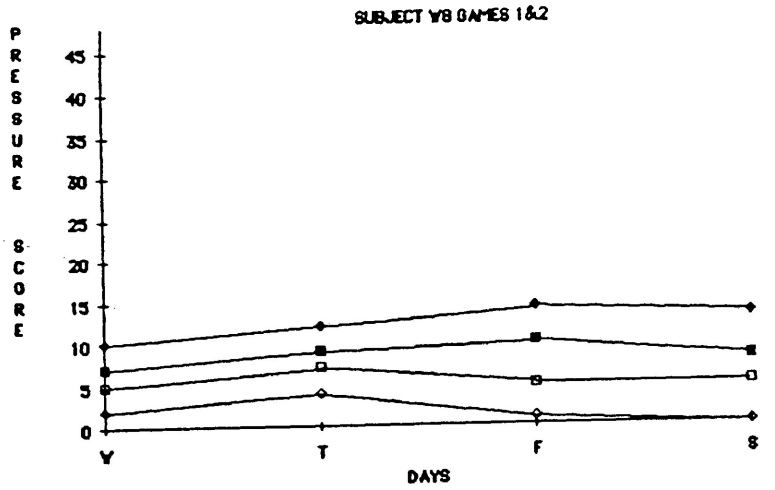
SUBJECT V8 GAMES 1&2
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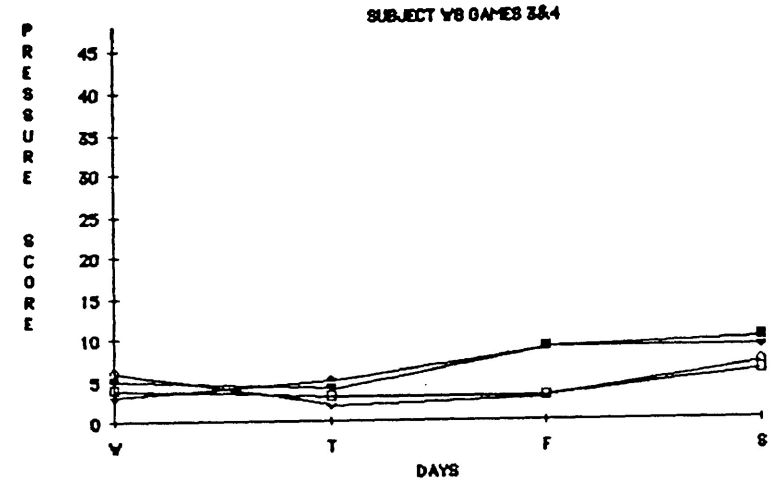
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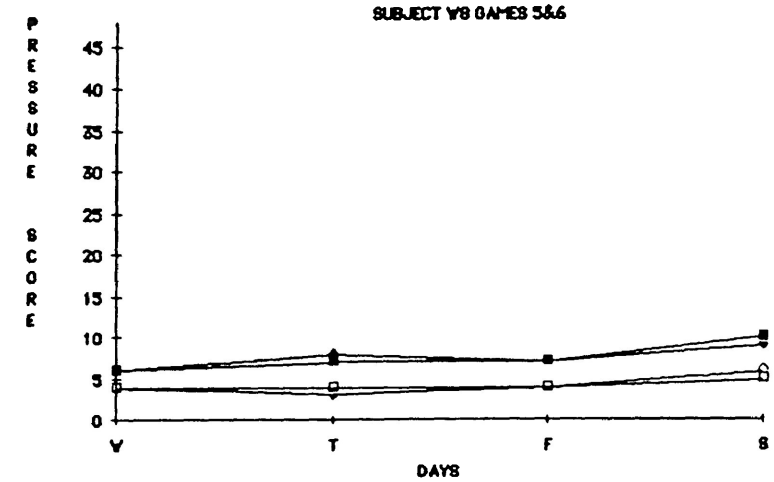
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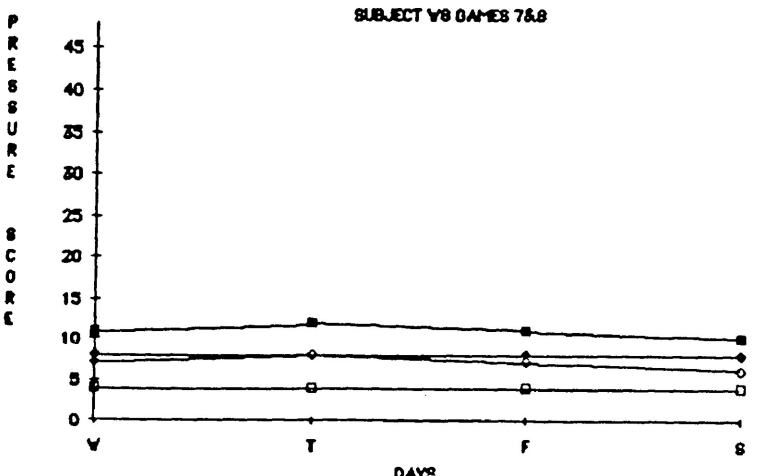
SUBJECT V8 GAMES 7&8
PRESSURE SCORE
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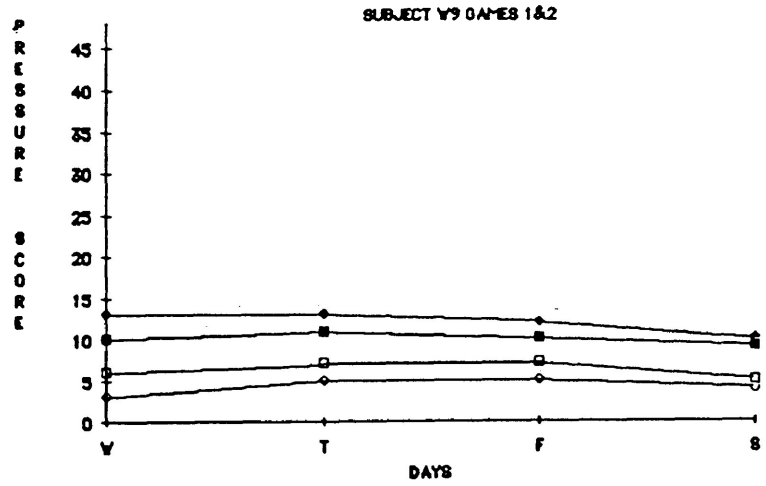
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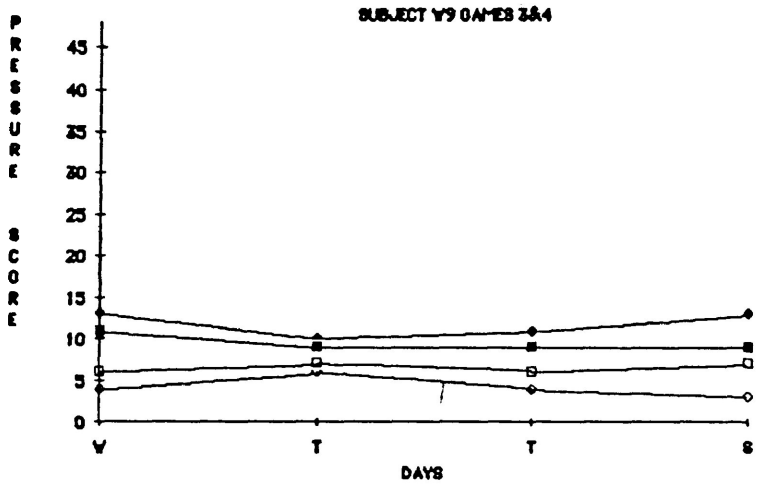
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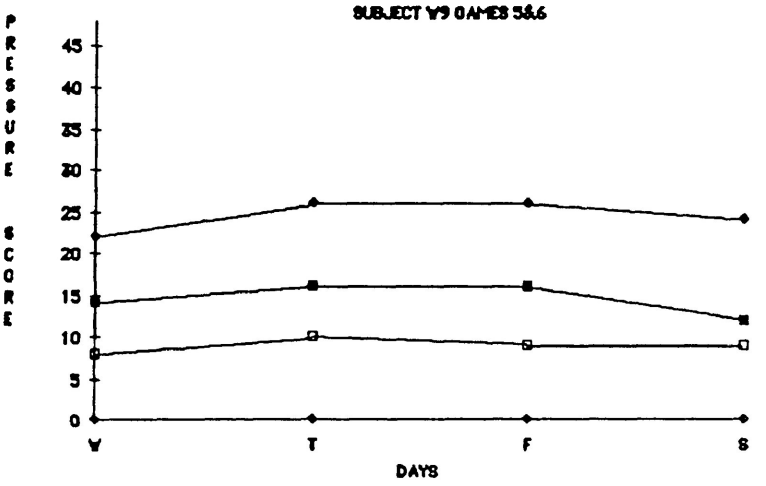
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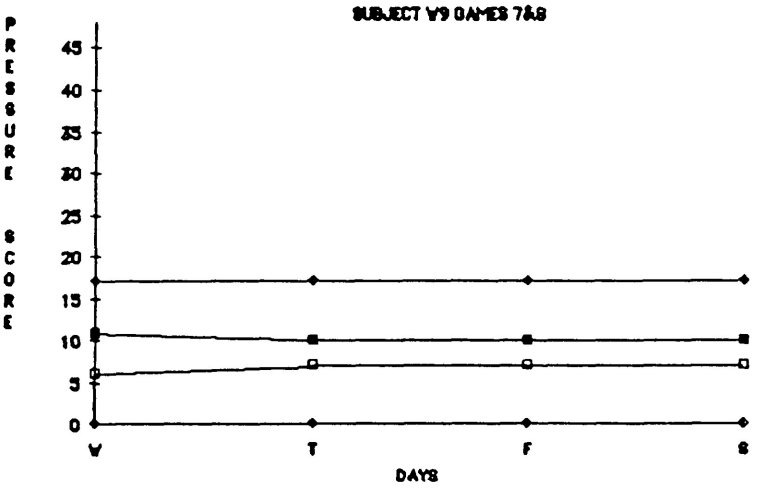
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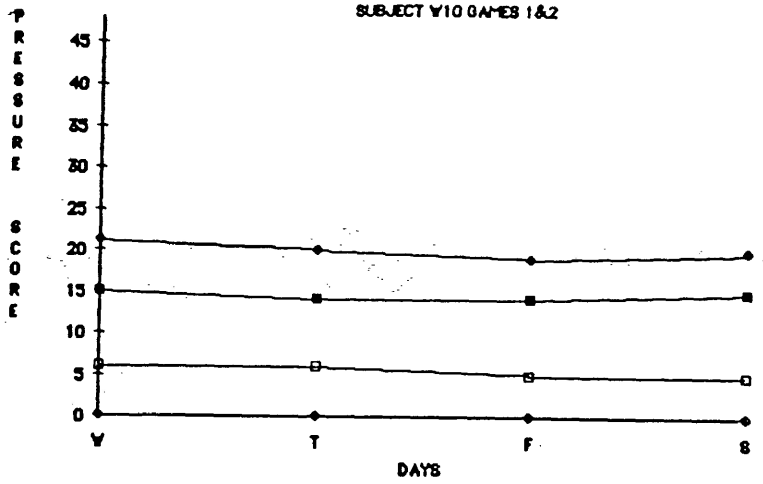
SUBJECT W10 GAMES 1&2
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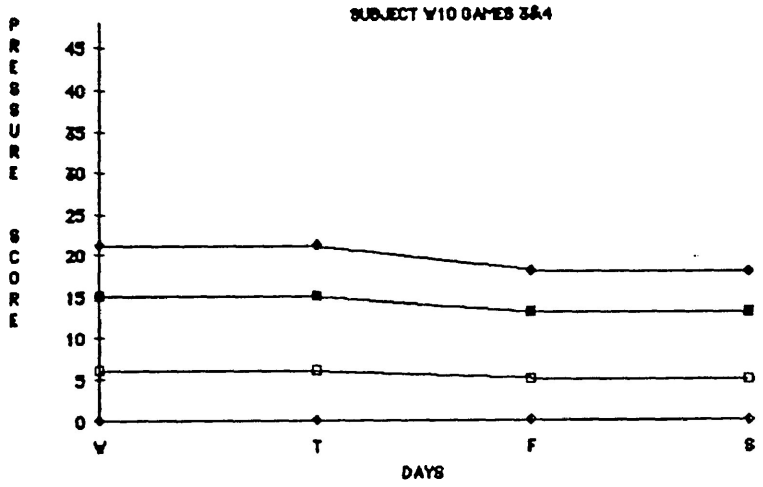
SUBJECT W10 GAMES 3&4
PRESSURE SCORE
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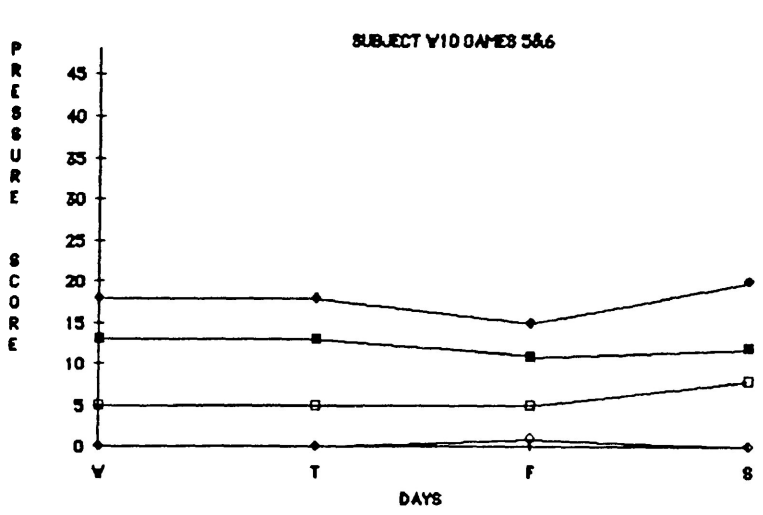
SUBJECT W10 GAMES 5&6
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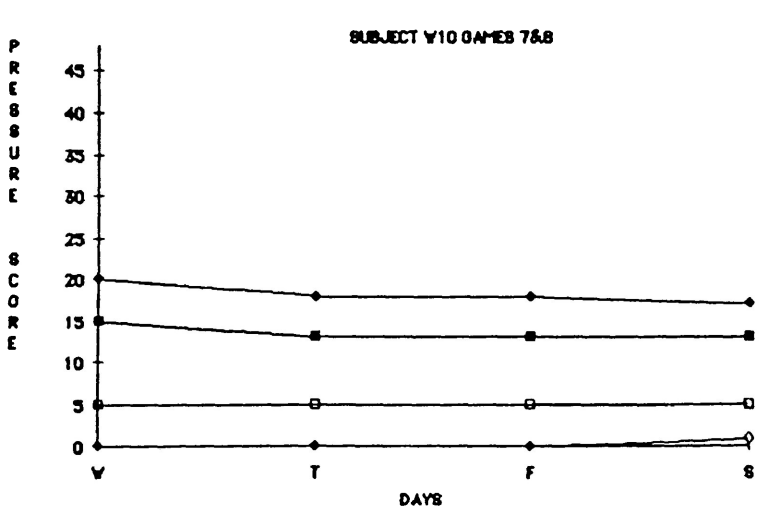
SUBJECT W10 GAMES 7&8
PRESSURE SCORE
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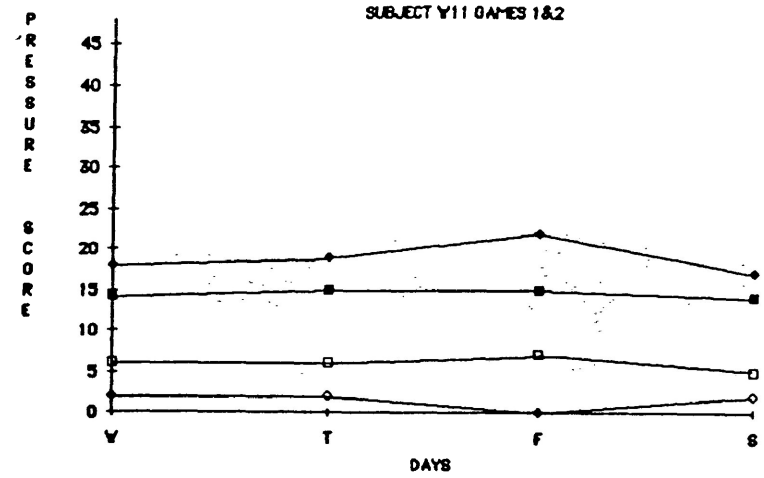
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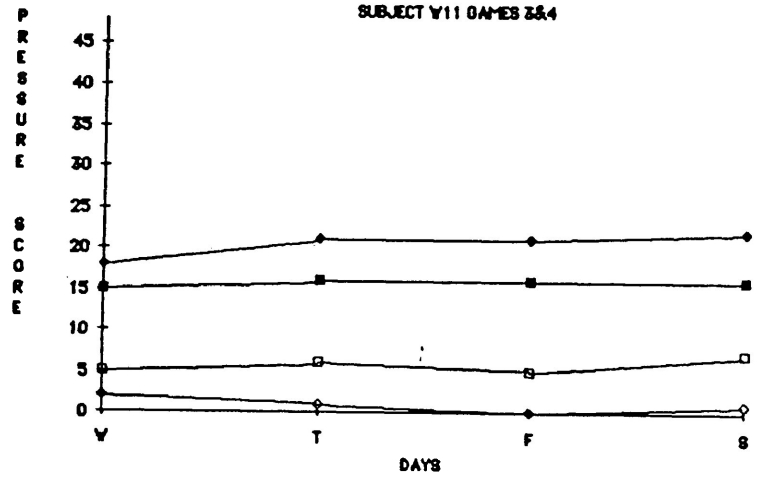
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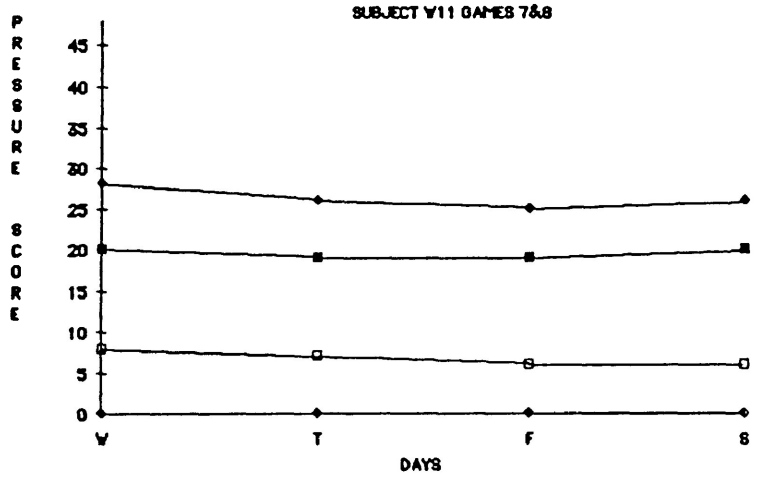
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PRESSURE SCORE
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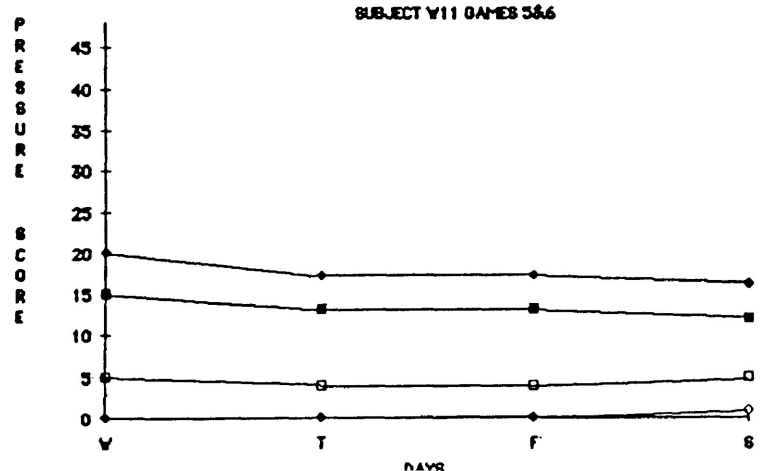
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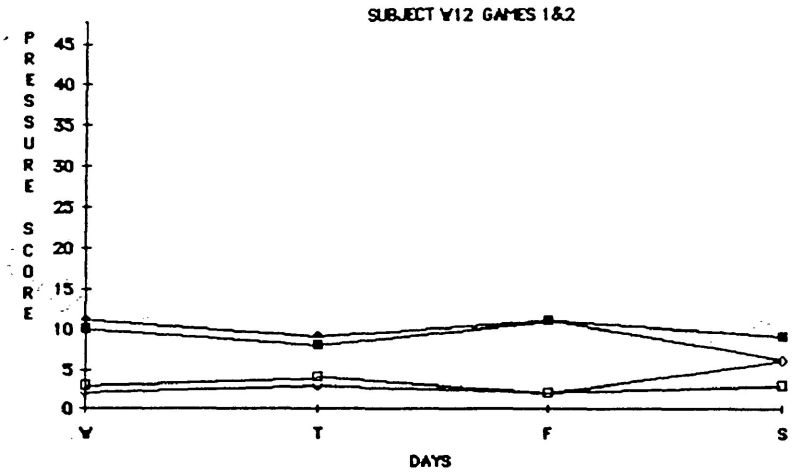
SUBJECT V12 GAMES 1&2
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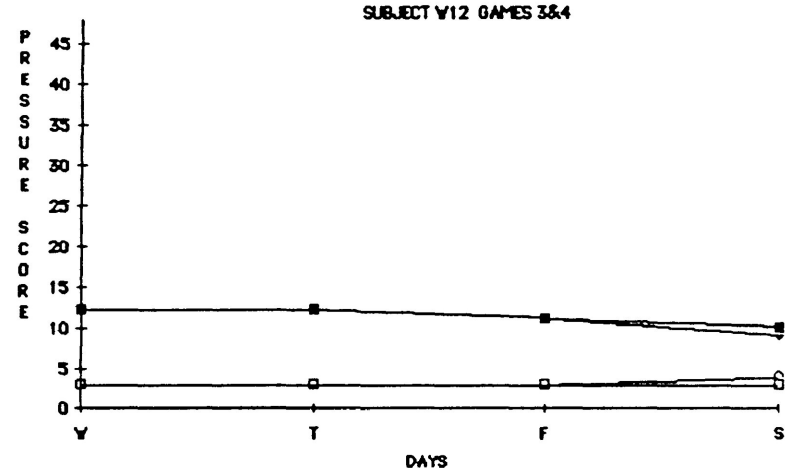
SUBJECT V12 GAMES 3&4
PRESSURE SCORE
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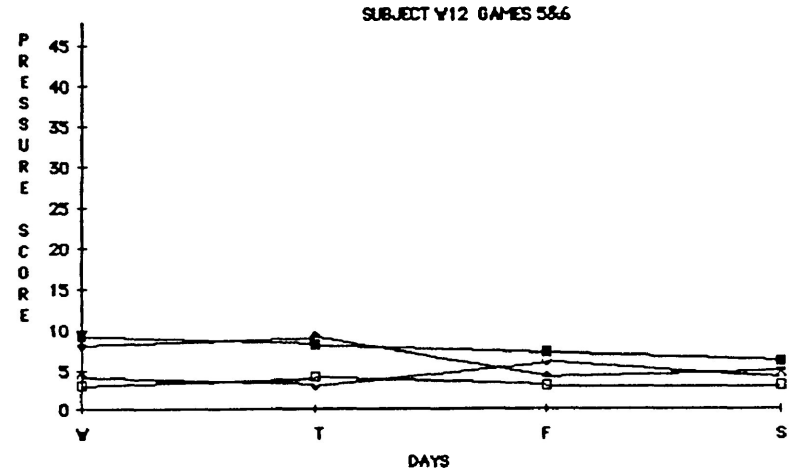
SUBJECT V12 GAMES 5&6
PRESSURE SCORE
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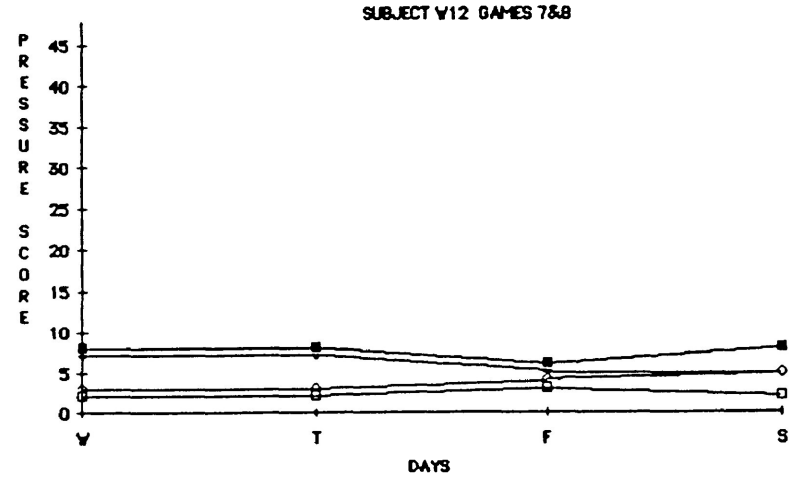
SUBJECT V12 GAMES 7&8
PRESSURE SCORE
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DAYS