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Availability of an avoidance response as related to fear and anxiety

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AVAILABILITY OF AN AVOIDANCE RESPONSE AS RELATED TO
FEAR AND ANXIETY

A Thesis Presented
By
Jack Alexander Szpiller

Submitted to the Graduate School of the
University of Massachusetts in partial
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AVAILABILITY OF AN AVOIDANCE RESPONSE AS RELATED TO FEAR AND ANXIETY

A Thesis

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Based upon a number of studies on sport parachuting (e.g., Epstein & Fenz, 1965; Fenz & Epstein, 1967), Epstein has proposed that anxiety and fear can be differentiated in terms of available response tendencies (Epstein, 1967). Epstein believes that perception of threat induces a heightened state of arousal. This arousal is to be distinguished from both fear and anxiety, in that it is more basic than either emotion. Anxiety is defined as a "state" in which an individual experiences diffuse arousal, but is unable to direct this arousal into purposive action." Fear, on the other hand, is a "motivated state of directed avoidance" (Epstein, 1970).

According to Epstein, fear and anxiety often occur together, with the relative contribution of each depending upon the degree of which S is committed to a specific avoidance response. The present study was undertaken to test this hypothesis. Preliminary findings (Epstein & Kling, 1970; Epstein, Solomon & Brent, 1970; Katkin, 1965; Katkin, 1966) have found that nonspecific GSRs are a measure of diffuse anxiety. It was anticipated, therefore, that frequency of nonspecific GSRs might be a particularly effective physiological measure for discriminating between fear and anxiety. It was further anticipated that Ss could verbally distinguish between anxiety and fear, and, accordingly would endorse different adjectives in describing the experimentally induced states of fear and anxiety. This is based on a study (Tomazwieski & Epstein, 1970) involving self-ratings of emotions in every day life with the use of adjective check lists in which separate factors for anxiety and fear were found.

METHOD

In this study a count-up paradigm was employed in which numbers on a counter advanced from 1 through 12 during each trial at 15 sec. intervals. There were six trials in all. Subjects in an Avoidance-Tapping Group were able to avoid shock (count 10) by tapping beyond a certain rate on a telegraph key between the numbers 8 and 10. (As a simple motor response relying upon speed, finger tapping was selected as an avoidance response analogous to running from danger). According to Epstein this should be tantamount to a fear condition because there is a goal directed avoidance response. In a No-Avoidance Tapping Group Ss were also required to tap between the numbers 8 and 10, but were informed that their tapping would have no influence upon the receipt of shock, which would occur on the count of 10 on certain trials selected at random. They were asked to tap as rapidly as possible, the ostensible purpose being to investigate the effect of motor activity on physiological reactions. This condition should provide an anxiety situation, since no response is available for coping with the shock. Subjects in a No-Tapping Group did not tap and were informed that they would receive a shock on the count of 10 on certain trials selected at random.

A yoked control design was used in which receipt of shock by Ss in the No-Avoidance-Tapping Group and the No-Tapping Group was yoked to Ss in the Avoidance-Tapping Group. For Ss in the Avoidance-Tapping Group, the second highest number of taps among 5 practice

trials was taken as an initial criterion. In the first experimental trial S had to surpass this criterion in order to avoid a shock. On subsequent trials S had to surpass tapping speed on the immediately preceding trial in order to avoid a shock. Subjects were not informed of this procedure, but were led to believe they had to surpass a variable criterion in order to avoid being shocked.

Subjects -- Subjects were 60 male undergraduate volunteers at the University of Massachusetts who were randomly assigned to 3 equal groups. Subjects were solicited from several introductory Psychology courses and from posters advertising the study. Each S received either \$2.00 or, where appropriate, course credits for his time.

Apparatus -- A Beckman Model RM Dynograph was used. Skin conductance was measured directly, using Beckman AG-AgCL electrodes (1.7 cm. diameter), K-Y Surgical jelly as the contact medium, and a constant voltage source having an output of .5 volts (Lykken & Venables, 1971). Heart rate was recorded from chest electrodes.

Shock level was set at 5 milliamps constant current. Shocks were of .5 seconds duration and were administered with a concentric disc electrode (Tursky, Watson & O'Connell, 1965) and an AC electrostimulator.

Procedure -- Upon entering the laboratory, Ss were required to complete an adjective check list (ACL). The ACL, derived from a previous factor analytic study (Tomazewski & Epstein, 1971), contained the following two scales: Anxiety (jittery, queasy, butterflies-in-stomach); and Fear (scared, frightened, panicky, terrified, threatened).

These adjectives were embedded in a larger group of adjectives that will be examined in another paper. Each S was asked to check how well each adjective described his present feeling state. The adjective check list was completed at each of the following 9 times during the experiment: pre-instructions, post-instructions, after each of 6 trials and again immediately following a brief interview at the end of the experiment.

Following the initial completion of the ACL, each S was then placed in a sound-proof room. Skin conductance electrodes were attached to the palm of the non-preferred hand. The EKG electrodes were attached on opposite sides of the lower chest. The shock electrode was placed on the ventral side of the wrist of the non-preferred hand.

After calibrating the equipment in the adjacent control room and taking pre-experimental baseline measurements, E returned and presented S with a written sheet of instructions, which varied according to group. Upon reading the instructions, S was informed about the use of a shock stimulus and of his opportunity to withdraw from the experiment then, or at any later time during the experiment. Two Ss withdrew when informed of the shock. If S agreed to participate, E presented the instructions again orally to eliminate any possibility of ambiguity. Following instructions, Ss completed the adjective check list again.

Analysis of Data -- The count-up paradigm provided distinct periods for analysis. These included the entire count-up period (count-up stimuli 1, 4, 7, 8, 9, 10, 12), an anticipatory period (count-up

stimuli 1, 4, 7, 8, 9) an impact period (count-up stimulus 10), and a pre-tap period (count-up stimuli 1, 4, 7). A two factor repeated measures analysis of variance was performed, comprising two between and two within variables. There were 3 levels for groups and 2 levels for shock (i. e. whether or not Ss were shocked on trial 1), treated as between-Ss effects. As within Ss effects there were 2 levels for trials and varying levels for the stimuli in the count-up, depending upon whether the analysis was of the pre-tap period, anticipatory period, or the total count-up period, each of which were analysed separately. The trials analysed were of the first (trial 1) and the last (trial 6) trial. The time periods analysed for the Adjective Check List data were the following: pre-instructions, post-instructions, post trial 1, post trial 5 and post experiment. The time period, post trial 5, was examined for the ACL data rather than the time period, post trial 6, to make the subjective scale more comparable to the physiological measures that were examined in trial 6. Ratings obtained from an ACL given post trial 6, might be measuring Ss' reactions to the completion of the experiment rather than their reactions to a possible shock.

Scoring and Data Reduction

Heart Rate -- Two scores were taken in measuring heart rate: the highest beat within 5 seconds preceding stimulus onset, and the highest beat within the 5 seconds following stimulus onset. Change

scores also were obtained by subtracting each prestimulus value from each poststimulus value.

Galvanic Skin Response -- A specific GSR was recorded if it was initiated between 1 to 3 seconds poststimulus onset. The magnitude of the specific GSR was obtained by taking the difference between the high point within a 1 through 7 second interval poststimulus onset and the low point preceding the high point within the same interval.

Nonspecific GSRs -- Nonspecific GSRs were counted if they exceeded .5 micromhos during a 1 second interval and occurred within the count-up period from 3 seconds following stimulus onset to 1 second post onset of the next stimulus for a total interval of 13 seconds. Only frequency was tabulated.

Skin conductance and heart rate were also range corrected to adjust for individual reactivity (Lykken, Rose, Luther and Maley, 1966). Since the transformation produced no additional findings, these data are not presented.

Results

Tapping Rate -- Tapping rate for the two tapping groups was analysed by an analysis of variance which compared the means for the second highest number of taps during the practice trials and the means of trial 1 and trial 6. The analysis yielded a significant Conditions x Trials interaction ($F=11.33$, $df= 2/76$, $p < .001$). According to the data presented in Figure 1 the No-Avoidance-Tapping Group had a relatively high tapping rate during the practice trials

Figure 1. Mean tapping rate for practice trials,
trial 1 and trial 6.

which decreased during the experiment. The Avoidance-Tapping Group exhibited a low rate of tapping during the practice trials (relative to the No-Avoidance-Tapping Group), which decreased slightly at trial 1 and increased considerably during the experiment.

A t-test was done comparing the means for the practice trials of the No-Avoidance-Tapping Group (118.8) and of the Avoidance-Tapping Group (107.1). A t of -1.30 was obtained which, with 19 df. was not significant at the .05 level. A t-test was also done comparing the means at trial 1 of the No-Avoidance-Tapping Group (106.9) and of the Avoidance-Tapping Group (104.4), and it was found to be non-significant (t= .28, df= 19, > .05). An additional t-test showed that the mean tapping rate for the Avoidance-Tapping Group at trial 6 (119.75) was significantly greater than the mean tapping rate for the No-Avoidance-Tapping Group at trial 6 (100.45). A t of 2.28 was obtained which, with 19 df. was significant at the .05 level.

Tonic Heart Rate -- Separate analyses of variance were done for pre, post, and post minus pre stimulus measures for the entire count-up period (1, 4, 7, 8, 9, 10, 12). Table 1 presents a summary of the F-Values for the three analyses of variance of heart rate. Table 1 indicates a highly significant Conditions x Stimuli interaction for both pre- and poststimulus heart rate. Since poststimulus scores add no new information of interest to that provided by the pre-stimulus scores, only prestimulus means are plotted in Figure 2. Examining Figure 2 it can be seen that the overall form of the curves for the two tapping groups is similar. Both tapping groups exhibit

TABLE 1

SUMMARY OF F VALUES FOR ANALYSIS OF
VARIANCE OF HEART RATE

Source of Variance	Measure Analysed					
	df	Prestimulus Heart Rate	df	Poststimulus Heart Rate	df	Change in Heart Rate
Groups-C	$\frac{2}{54}$	3.61*	$\frac{2}{54}$	4.38*	$\frac{2}{54}$	4.11*
Shock on Tr#1-P	$\frac{1}{54}$	1.09	$\frac{1}{54}$	1	$\frac{1}{54}$	2.46
Trial-T	$\frac{1}{54}$	12.85***	$\frac{1}{54}$	17.75***	$\frac{1}{54}$	1
Stimuli-W	$\frac{6}{324}$	67.45***	$\frac{6}{324}$	71.14***	$\frac{6}{324}$	21.46***
CxP	$\frac{2}{54}$	1	$\frac{2}{54}$	1	$\frac{2}{54}$	1
CxT	$\frac{2}{54}$	1.34	$\frac{2}{54}$	2.80	$\frac{2}{54}$	1
PxT	$\frac{1}{54}$	1.13	$\frac{1}{54}$	1	$\frac{1}{54}$	2.61
CxW	$\frac{12}{324}$	15.53***	$\frac{12}{54}$	10.06***	$\frac{12}{54}$	2.80**
PxW	$\frac{6}{324}$	1	$\frac{6}{324}$	1.49	$\frac{6}{324}$	1.89
TxW	$\frac{6}{324}$	1.83	$\frac{6}{324}$	3.49**	$\frac{6}{324}$	1
CxPxT	$\frac{2}{54}$	2.05	$\frac{2}{54}$	3.42*	$\frac{2}{54}$	1
CxPxW	$\frac{12}{324}$	1	$\frac{12}{324}$	1	$\frac{12}{324}$	1.68
CxTxW	$\frac{12}{324}$	1.73	$\frac{12}{324}$	1.27	$\frac{12}{324}$	1.00
PxTxW	$\frac{6}{324}$	1	$\frac{6}{324}$	1	$\frac{6}{324}$	1
CxPxTxW	$\frac{12}{324}$	1	$\frac{12}{324}$	1.07	$\frac{12}{324}$	1.17

* p .05
 ** p .01
 *** p .001

Figure 2. Mean Prestimulus Heart Rate for total count-up period pooled over trials.

a rise to 7, a slight decrease at pre 8 and a marked acceleration during the tapping period from pre 9 to pre 10 followed by a marked deceleration to count 12. The curve for the No-Tapping Group shows only a slight rise during the tapping period. The greatest disparity among groups occurs during the tapping period, with the Avoidance-Tapping Group having the highest heart rate, the No-Avoidance-Tapping Group having the next highest rate and the No-Tapping Group having the lowest heart rate.

Prestimulus means were also analysed for the anticipatory period alone (1, 4, 7, 8, 9, 10). A main effect was found for Conditions. The mean for the Avoidance-Tapping Group was 101.10, for the No-Avoidance-Tapping Group, 92.84, and for the No-Tapping Group, 87.07 ($F = 4.60$, $df = 2/54$, $p < .05$). A main effect was also found for Trials. The mean for Trial 1 was 95.62, and the mean for Trial 6 was 91.71 ($F = 11.95$, $df = 1/54$, $p < .01$). There was also a main effect for Stimuli ($F = 63.94$, $df = 5/270$, $p < .001$). These effects can be seen in Figure 2. A first order interaction for Conditions x Stimuli ($F = 15.17$, $df = 10/270$, $p < .001$) was produced. This interaction was described in the analysis of the total count-up period and can be seen in Figure 2.

In order to see if the two tapping groups differed from each other, an analysis of variance was done on the prestimulus measures for the anticipatory period, omitting the No-Tapping Group. The analysis produced a significant main effect for Stimuli ($F = 72.06$, $df = 5/180$, $p < .001$). A main effect was also found for Trials. The

mean for Trial 1 was 98.51, and the mean for Trial 6 was 95.42 ($F = 4.46$, $df = 1/36$, $p < .05$). The analysis also produced a first order interaction for Conditions x Stimuli ($F = 5.20$, $df = 5/180$, $p < .001$), indicating that the two tapping groups did differ from each other. These effects can be seen in Figure 2.

An additional analysis was done for the prestimulus means for the pre-tap period (1, 4, 7, 8) to see if group differences occur during the period before tapping. No significant differences were found among groups.

Heart Rate Variability -- In order to compare heart rate variability between the two tapping groups during the tapping period, a one-way analysis of variance was performed. Since interest was in deviations around an increasing baseline, the analysis was performed on the standard error of estimates. Heart rate scores on which the standard error of estimates were done were the first beat 5 seconds post count 8 and every third beat thereafter, until 9 beats were recorded. The findings reveal a nonsignificant tendency for there to be greater heart rate variability in the No-Avoidance-Tapping Group than in the Avoidance-Tapping Group during the tapping period ($F = 2.89$, $df = 2/38$, $p < .10$).

Phasic Heart Rate -- Change scores for heart rate (post minus pre) were analysed over the total count-up period for all groups. There was a main effect for Conditions. The mean for the Avoidance-Tapping Group was 3.10, for the No-Avoidance-Tapping Group, 1.29, and for the No-Tapping Group, 2.19 ($F = 4.11$, $df = 2/54$, $p < .05$). A

significant effect was also found for Stimuli. The means for Stimuli were as follows: Stimulus 1= 1.81; Stimulus 4= 1.88; Stimulus 7= 2.89; Stimulus 8= 8.56; Stimulus 9= 3.37; Stimulus 10= -0.13; Stimulus 12= -3.01 ($F= 21.46$, $df= 6/324$, $p < .001$). A significant Conditions x Stimuli interaction ($F= 2.80$, $df= 12/324$, $p < .01$) was also found and is plotted in Figure 3. The data indicate that both tapping groups exhibit similar curves, which show a steep rise at Stimulus 8, and a marked decrease to Stimulus 9. The No-Tapping Group, however, does not show this effect. It should be noted that count 8 is the only stimulus for which a pre-tapping point is compared to a post-tapping point, and this accounts for the large increase in heart rate to count 8 for the tapping groups. It is noteworthy that the Avoidance-Tapping Group produces a greater reaction to count 8 than the No-Avoidance-Tapping Group.

Change scores were also analysed for the anticipatory period only. A main effect was produced for Conditions. The mean for the Avoidance-Tapping Group was 4.99, for the No-Avoidance-Tapping Group, 3.04, and for the No-Tapping Group, 3.08 ($F= 3.49$, $df= 2/54$, $p < .05$). A main effect was also found for Stimuli ($F= 12.62$, $df= 4/216$, $p < .001$). The Condition x Stimuli interaction ($F= 2.79$, $df= 8/216$, $p < .01$) was also significant (see Figure 3).

An analysis of change in heart rate for the pre-tap period alone produced only a main effect for Shock. The mean for Shock on trial 1 was 1.33, while the mean for No-Shock on trial 1 was 3.06 ($F= 6.15$, $df= 1/54$, $p < .05$).

Figure 3. Mean Phasic Heart Rate for total count-up period.

An analysis of change in heart rate for the impact period alone (post 10 minus pre 10) produced a main effect for Conditions. The mean for the Avoidance-Tapping Group was -1.48, for the No-Avoidance-Tapping group, -1.25, and for the no-Tapping Group, 2.50 ($F=4.43$, $df= 2/54$, $p<.05$).

Basal Skin Conductance -- Separate analyses of variance were done for pre, post and post minus pre stimulus measures for the total count-up dimension. Table 2 presents a summary of the F-Values for the three analyses of variance for basal skin conductance. In Table 2 it can be seen that there is a highly significant Conditions x Stimuli interaction for both pre- and poststimulus basal skin conductance. Since poststimulus scores are confounded by the occurrence of specific GSRs, the prestimulus measures provide the better indicator of basal skin conductance, and are plotted in Figure 4. The data indicate that all groups show parallel flat curves up to count 7. The groups begin to diverge at count 8 with both tapping groups exhibiting a marked rise from Stimulus 7 to 10, while the No-Tapping Group maintains a flat curve up to count 8, and exhibits a marked rise only from Stimulus 9 to 10. The rise from pre-7 to pre -8 in the tapping groups indicates a reaction in anticipation of tapping. For prestimulus heart rate, however, as seen in Figure 2, a rise occurred from pre -4 to pre-7 and a decrease, suggestive of an attentive reaction, occurred from pre-7 to pre -8 for the tapping groups.

An analysis of variance was also done on the prestimulus means for the anticipatory period alone. A main effect was found for Trials.

SUMMARY OF F VALUES FOR ANALYSES OF
VARIANCE OF BASAL SKIN CONDUCTANCE

Source of Variance	df	Measure Analysed				
		Prestimulus Skin Conductance	df	Poststimulus Skin Conductance	df	Changes in Skin Conductance
Groups-C	$\frac{2}{54}$	1.52	$\frac{2}{54}$	1.89	$\frac{2}{54}$	1
Shock on Tr #1-P	$\frac{1}{54}$	1	$\frac{1}{54}$	1	$\frac{1}{54}$	1
Trials-T	$\frac{1}{54}$	8.64**	$\frac{1}{54}$	8.24**	$\frac{1}{54}$	1
Stimuli-W	$\frac{6}{324}$	58.04***	$\frac{6}{324}$	59.33***	$\frac{6}{324}$	29.01***
CxP	$\frac{2}{54}$	1.13	$\frac{2}{54}$	1.01	$\frac{2}{54}$	1
CxT	$\frac{2}{54}$	1	$\frac{2}{54}$	1	$\frac{2}{54}$	1
PxT	$\frac{1}{54}$	1	$\frac{1}{54}$	1	$\frac{1}{54}$	1
CxW	$\frac{12}{324}$	3.67***	$\frac{12}{324}$	2.98***	$\frac{12}{324}$	2.96***
PxW	$\frac{6}{324}$	1.52	$\frac{6}{324}$	1.97	$\frac{6}{324}$	1.23
TxW	$\frac{6}{324}$	10.82***	$\frac{6}{324}$	8.81***	$\frac{6}{324}$	5.26***
CxPxT	$\frac{2}{54}$	1	$\frac{2}{54}$	1	$\frac{2}{54}$	1
CxPxW	$\frac{12}{324}$	1	$\frac{12}{324}$	1	$\frac{12}{324}$	1
CxTxW	$\frac{12}{324}$	1.60	$\frac{12}{324}$	1.47	$\frac{12}{324}$	1.85*
PxTxW	$\frac{6}{324}$	1.94	$\frac{6}{324}$	1	$\frac{6}{324}$	4.54***
CxPxTxW	$\frac{12}{324}$	1.03	$\frac{12}{324}$	1	$\frac{12}{324}$	1

* p .05
 ** p .01
 *** p .001

Figure 4. Mean Prestimulus Basal Skin Conductance for total count-up period pooled over trials.

The mean for Trial 1 was 22.51, and the mean for Trial 6 was 24.40 ($F=8.77$, $df= 1/54$, $p < .01$). There was also a main effect for Stimuli ($F= 67.23$, $df= 5/270$, $p < .001$), which can be seen in Figure 4. A Conditions x Stimuli interaction ($F= 4.24$, $df= 10/270$, $p < .01$) was also found. This interaction was described before in the analysis of the total count-up period (see Figure 4).

A separate analysis of variance of just the two tapping groups was done for the anticipatory period to see if the Conditions x Stimuli interaction already reported was produced by the divergence of these groups from the No-Tapping Group. A main effect was obtained for Trials. The mean for Trial 1 was 23.56, while the mean for Trial 6 was 25.44 ($F= 4.18$, $df= 1/36$, $p < .05$). A main effect was observed for Stimuli ($F= 48.93$, $df= 5/180$, $p < .001$). The effects for Stimuli can be seen in Figure 5. A three way interaction for Conditions x Stimuli x Trials ($F= 2.54$, $df= 5/180$, $p < .05$) was also found. A plot of this interaction can be seen in Figure 5. Both groups exhibit a relatively flat curve up to count 7, then begin a rise preceding the tapping period and extending through it for both trials 1 and 6. The Conditions x Stimuli x Trials interaction is produced by the Avoidance-Tapping Group exhibiting a greater increase during the tapping period from trials 1 to 6 than the No-Avoidance-Tapping Group. This is consistent with the increased tapping rate of the Avoidance-Tapping Group on trial 6.

A separate analysis of variance was done on the prestimulus means for the pre-tap period for all groups to see if group differences

Avoidance-Tapping Group

No-Avoidance-Tapping Group

Figure 5. Mean Prestimulus Basal Skin Conductance for total anticipatory period for 2 tapping groups.

were manifest before the tapping period. A main effect was produced for Stimuli ($F= 17.97$, $df= 3/162$, $p < .001$). These effects can be seen in Figure 4. A main effect was also found for Trials. The mean for Trial 1 was 21.53, and the mean for Trial 6 was 22.76 ($F= 4.36$, $df= 1/54$, $p < .05$). A Conditions x Stimuli interaction ($F= 5.26$, $df= 6/162$, $p < .001$) was also found which indicates that group differences emerged before the tapping period. This interaction has been described before in the analysis of the total count-up period and can be seen in Figure 4.

A subsequent analysis was done on the pre-tap period omitting the No-Tapping Group to see if the two tapping groups differed from each other. The analysis yielded a highly significant main effect for Stimuli ($F= 20.81$, $df= 3/108$, $p < .001$), and a third order interaction for Conditions x Stimuli x Trials ($F= 3.51$, $df= 3/108$, $p < .05$) indicating that the two tapping groups differed from each other in the pre-tap period (see Figure 5).

An analysis of variance was also performed on the pooled stimulus periods compared to each other for all groups. These periods were early pre-tap (1, 4), pre-tap (7, 8) and tapping (9, 10) periods. The analysis produced a main effect for Trials. The mean for Trial 1 was 22.51, and the mean for Trial 6 was 24.40 ($F=8.77$, $df= 1/54$, $p < .01$). A main effect was also found for Stimuli. The mean for the early pre-tap period was 21.80, the mean for the pre-tap period was 22.49, and the mean for the tap period was 26.07 ($F= 69.49$, $df= 2/108$, $p < .001$). A Conditions x Stimuli interaction ($F= 4.23$, $df= 4/108$, $p < .01$) was

also found. A plot of this interaction can be seen in Figure 6. The data indicate that the overall form of the curves for the two tapping groups is similar. Both tapping groups exhibit an increase in the pre-tap period (7, 8) and a greater increase during the tapping period (9, 10). The curve for the No-Tapping Group, however, shows a slight decrease during the pre-tap period followed by a rise during the tapping period.

Specific GSRs -- Specific GSRs were analysed for the total count-up dimension. The analysis produced a main effect for Stimuli ($F = 26.86$, $df = 4/26$, $p < .001$). This effect can be seen in Figure 7. A first order interaction for Conditions x Stimuli ($F = 2.96$, $df = 12/324$, $p < .001$), and a 3-way interaction, Conditions x Stimuli x Trials ($F = 1.85$, $df = 12/324$, $p < .05$) were also found. These effects can be seen in Figure 7. It can be seen from Figure 7 that the curves for both tapping groups are similar in several respects. Both tapping groups exhibit a fall from stimuli 1 to 4 and then a rise to stimulus 8, which marks the onset of tapping, and a marked fall to count 9 on both trials 1 and 6. As was noted in the data for change in heart rate, count 8 is the only one that compares a post-tap to a pre-tap reaction, which can be expected to produce a large GSR. This explains the much greater reaction to stimulus 8 than to stimulus 9. Of particular interest in view of the Conditions x Stimuli x Trials interaction is that the three groups exhibit a differential rise in GSR in the pre-tap period during the counts 4 to 7 from trials 1 to 6. The Avoidance-Tapping Group shows a steeper slope in trial

Figure 6. Mean Stimulus Periods compared to each other for Basal Skin Conductance over total anticipatory period for all groups pooled over trials.

Figure 7. Mean Phasic GSR for total count-up period for all groups.

6 than in trial 1, while the No-Avoidance-Tapping Group shows a decrease in slope from trials 1 to 6. This is consistent with the view that the Avoidance-Tapping Group is becoming increasingly motivated over trials. It is noteworthy that the difference precedes tapping, and therefore can not be accounted for by tapping rates.

Specific GSRs were also analysed for the anticipatory period alone. A main effect was found for Stimuli ($F = 26.86$, $df = 4/216$, $p < .001$). A first order interaction for Conditions x Stimuli ($F = 3.80$, $df = 8/216$, $p < .001$) was also found. These effects can be seen in Figure 7.

An analysis of the pre-tap period alone was done for all groups to see if differences among groups occurred during the pre-tap period for specific GSRs. Main effects were found for Stimuli ($F = 23.21$, $df = 2/108$, $p < .001$) and for Trials. The mean for Trial 1 was 1.82, while the mean for Trial 6 was 1.35 ($F = 8.10$, $df = 1/54$, $p < .01$). Interactions for Conditions x Trials ($F = 3.67$, $df = 2/54$, $p < .05$), Conditions x Stimuli ($F = 5.13$, $df = 4/108$, $p < .001$), and Conditions x Stimuli x Trials ($F = 2.71$, $df = 4/108$, $p < .05$) were also produced (see Figure 7).

An analysis of the impact period (post 10 minus pre 10) produced no significant differences among groups.

Nonspecific GSRs -- An analysis of variance was performed over the total count-up dimension for nonspecific GSRs. There was a significant main effect for Conditions. The mean for the Avoidance-Tapping Group was 1.18, for the No-Avoidance-Tapping Group, 1.59, and

for the No-Tapping Group, 1.44 ($F= 5.28$, $df= 2/54$, $p < .001$). A very significant main effect was also found for Stimuli ($F= 46.54$, $df= 6/324$, $p < .001$). These effects can be seen in Figure 8. First order interactions for Conditions x Shock ($F= 6.57$, $df= 2/54$, $p < .01$) and Conditions x Stimuli ($F= 2.49$, $df= 12/324$, $p < .01$) were also found. The Conditions x Stimuli interaction can be seen in Figure 8. All groups are similar up to the onset of tapping, and exhibit a gradient of increasing nonspecific GSRs. The groups spread out during the tapping period, with the No-Avoidance-Tapping Group being highest and the Avoidance-Tapping Group being lowest.

An additional analysis of the anticipatory period alone produced a main effect for Conditions. The mean for the Avoidance-Tapping Group was 1.39, for the No-Avoidance-Tapping Group, 1.87, and for the No-Tapping Group 1.54, ($F= 4.88$, $df= 2/54$, $p < .05$). A main effect for Stimuli ($F= 48.78$, $df= 4/216$, $p < .001$) was also found. There was also a Conditions x Stimuli interaction ($F= 2.23$, $df= 8/216$, $p < .05$). These effects can be seen in Figure 8.

A subsequent analysis was done for nonspecific GSRs during the pre-tap period. No significant differences were found among groups.

An analysis of variance was also performed on pooled stimulus periods compared to each other for all groups. These periods included an early pre-tap period (1, 4), a pre-tap period (7) and the tapping period (8, 9). A main effect was found for Conditions. The mean for the Avoidance-Tapping Group was 1.46, for the No-Avoidance-Tapping Group, 1.86, and for the No-Tapping Group, 1.54 ($F= 3.85$, $df= 2/54$, $p < .05$). A main effect for Stimuli was also found. The mean for the

Figure 8. Mean number of Nonspecific GSRs over total count-up period for all groups pooled over trials.

early pre-tap period was 0.97, for the pre-tap period, 1.74 and for the tapping period, 2.15 ($F= 71.07$, $df= 2/108$, $p < .001$). A significant Conditions x Stimuli interaction was also produced ($F= 4.02$, $df= 4/108$, $p < .01$). The data in Figure 9 indicate that the No-Avoidance-Tapping Group and the No-Tapping Group exhibit a marked increase in number of nonspecific GSRs during the pre-tap and tapping periods. The Avoidance-Tapping Group, however, shows a marked increase in number of nonspecific GSRs during the pre-tap period, but shows a decrease during the tapping period. It is noteworthy that among the three groups, the Avoidance-Tapping Group exhibited the fewest number of nonspecific GSRs during the tapping period.

Adjective Check List -- An analysis of variance on the 3 anxiety words (jittery, queasy, butterflies-in-stomach), revealed a main effect for Adjectives. The mean for jittery was 0.60, for queasy, 0.35, and for butterflies-in-stomach, 0.50 ($F= 10.77$, $df= 2/108$, $p < .001$). A main effect was also produced for Trials ($F= 28.34$, $df= 4/216$, $p < .001$), which can be seen in Figure 10. A significant Conditions x Trials ($F= 2.25$, $df= 8/216$, $p < .05$) interaction was also found and is plotted in Figure 10. As can be noted in Figure 10, all groups report an increase in feelings of anxiety following instructions. The Avoidance-Tapping Group produces the least increase, and also has a lower score than the other groups on trial 1.

An analysis of variance on the 5 fear adjectives (scared, threatened, panicky, frightened, terrified) produced a main effect

Figure 9. Mean Stimulus Periods compared to each other for Nonspecific GSRs over total anticipatory period for all groups pooled over trials.

Figure 10. Mean Anxiety Scores for all groups as a function of time of testing.

for Adjectives. The mean for scared was 0.34, for threatened, 0.25, for panicky, 0.16, for frightened, 0.28, and for terrified, 0.11 ($F= 8.79$, $df= 4/216$, $p < .001$). There was also a main effect for Trials. The mean for pre-instructions was 0.20, for post instructions, 0.38, for trial 1, 0.35, for trial 5, 0.18, and for final, 0.03 ($F= 17.17$, $df= 4/216$, $p < .001$). There was no significant effect associated with groups.

DISCUSSION

It was hypothesized that anxiety and fear could be differentiated physiologically and subjectively, and that this would be dependent upon the degree to which a response is available for coping with a threat. It was anticipated that when subjects are placed in a situation where shock is imminent and no escape is possible (No-Avoidance-Tapping Group) these subjects would manifest a greater frequency of nonspecific GSRs than subjects who were placed in a situation in which shock could be avoided (Avoidance-Tapping Group). It was also anticipated Ss could verbally distinguish between anxiety and fear and that when subjects are threatened with shock and are unable to avoid it they will rate "anxiety" adjectives as more applicable to their situation than "fear" adjectives and will exhibit the reverse when in a position of being able to avoid the shock. The results support the hypothesis that anxiety defined in these terms is a state of nonspecific, diffuse arousal, while fear is a motivated state of directed avoidance.

The anticipatory period to a stressful event is a significant time for a subject, since it is at this time that he must elicit coping mechanisms in his repertoire if he is to deal effectively with a threat. It is during this period that arousal is known to vary as a function of an effective coping response (Lazarus, Averill & Opton, 1970).

In this study, an Avoidance-Tapping Group which had an effective

avoidance response, unlike a No-Avoidance-Tapping Group which had an ineffective response and a No-Tapping Group which had no response at all. In examining the data for heart rate, it can be seen that a marked increase occurred during the tapping period for both tapping groups, while the No-Tapping Group did not exhibit such an increase. The motoric effect of tapping appears to have elevated the heart rate levels for the two tapping groups during the tapping period, but it was not the only source of variance. An analysis of just the two tapping groups for the total anticipatory period produced a significant Conditions x Stimuli interaction suggesting that the steeper rise for the Avoidance-Tapping Group during the tapping period was produced by the motoric effect of tapping, and by the heightened motivation to avoid the shocks. In other words, perhaps the Avoidance-Tapping Group became more involved in the tapping task, because it had an opportunity to avoid a threat. This is also supported by the results for tapping rate. It can be seen in Figure 1 that the Avoidance-Tapping Group's tapping rate increased markedly throughout the experiment, whereas the No-Avoidance-Tapping Group's rate of tapping decreased steadily over trials.

The data for basal skin conductance also illustrates that arousal increased greatly during the tapping period for both tapping groups, but not for the No-Tapping Group. Once again, as was noted in the data for heart rate, arousal appears to have increased during the tapping period partially as a function of the tapping response.

An analysis of just the two tapping groups for the total

anticipatory period produced a significant difference between the two tapping groups for basal skin conductance. It seems that basal skin conductance is also a measure of increased motivation as shown by Figure 5. There is some support for this observation when one examines the degree to which trial 6 is greater than trial 1 during the pre-tap period but particularly during the tapping period for the Avoidance-Tapping Group than for the No-Avoidance-Tapping Group.

Both tapping groups exhibited a sharp acceleration throughout the tapping period for heart rate and basal skin conductance, but the rise for basal skin conductance initiated at count 7, which precedes the onset of tapping, suggesting that both tapping groups underwent a readiness to tap. This is supported by a pre-tap analysis for basal skin conductance, but not for heart rate, indicating that group differences emerged before the tapping period, as indicated by basal skin conductance. It may not have appeared for heart rate, however, because it was cancelled out by anticipatory deceleration immediately preceding onset of tapping. According to the results of this experiment, there is physiological arousal associated with a readiness to perform a response, regardless of whether or not it is an effective coping response. The mere anticipation of performing an act which may serve as an avoidance response or merely as a distracting response appears sufficient to increase arousal.

While the findings for heart rate and basal skin conductance suggest an increase in tension for both tapping groups during the tapping period, the data for nonspecific GSRs suggest a decrease in

anxiety for the Avoidance-Tapping Group, as manifested by a reduced number of nonspecific GSRs over the entire anticipatory period, and particularly during the tapping period. This finding is further supported by the tendency for heart rate variability to be greater for the No-Avoidance-Tapping Group than for the Avoidance-Tapping Group. The question may be raised as to whether the findings for nonspecific GSRs are merely artifactual. That is, since the Avoidance-Tapping Group also exhibits a lower basal conductance level during this same period, there may be a direct correspondence between basal level and frequency of nonspecific GSRs. However, examination of Figures 6 and 9 indicate that this is not the case. The data in Figure 6 shows that both tapping groups exhibited a marked increase in basal level throughout the entire anticipatory period. The data in Figure 9, however, indicates that the No-Avoidance-Tapping Group produced a steady increase in the number of nonspecific GSRs throughout the anticipatory period, while the Avoidance-Tapping Group exhibited an increase in nonspecific GSRs during the pre-tap period but a decrease during the tapping period. These findings support Epstein's hypothesis that anxiety and fear vary as a function of the degree to which a response is available for coping with a threat.

An analysis of the 3 anxiety adjectives by themselves produced a significant Conditions x Trials interaction, which indicated that Ss reported an increase in feelings of anxiety when first informed of a threat. Furthermore, the interaction suggests that an inverse relationship exists between the amount of anxiety reported when in-

initially informed of a threat and one's perceived ability to cope with the threat. This is supported by the smaller increase in reporting feelings of anxiety for the Avoidance-Tapping Group as compared to the other two groups.

An analysis of the 5 fear adjectives by themselves produced no significant group effects.

The anxiety words were consistently rated as more descriptive of Ss feelings than the fear words. It may be that since the factors were derived from descriptions of real life situations that adjectives such as "terrified" and "panicky" are not applicable in the laboratory, since subjects are aware that no life and death danger is at hand.

The results support Epstein's hypothesis that anxiety is a state of nonspecific, diffuse arousal, while fear is a motivated state of directed avoidance. This was confirmed physiologically by the frequency of nonspecific GSRs and a nonsignificant tendency for there to be greater heart rate variability in the No-Avoidance-Tapping Group than in the Avoidance-Tapping Group during the tapping period and subjectively by the anxiety adjectives, but not by the fear adjectives.

SUMMARY

This study sought to establish physiological and subjective differences between anxiety and fear. Sixty Ss were randomly assigned to three equal groups. An Avoidance-Tapping Group was able to avoid a shock by tapping rapidly, a kind of "running away" with the fingers, so to speak. A No-Avoidance-Tapping Group was encouraged to make the same response, but it did not prevent shock. Subjects in a No-Tapping Group did not have any response to perform, nor could they avoid shock. The results support the hypothesis that anxiety is a state of nonspecific, diffuse arousal, while fear is a motivated state of directed avoidance. Specifically, the No-Avoidance-Tapping Group reported more anxiety, exhibited a greater frequency of nonspecific GSRs, and showed more variability in heart rate than did the Avoidance-Tapping Group.

References

- Epstein, S. "Toward a unified theory of anxiety." In B. A. Maher (Ed.), Progress in Experimental Personality Research, Vol. 4 New York: Academic Press, 1967. pp. 1-89.
- Epstein, S. "The nature of anxiety with emphasis upon its relationship to expectancy." In C. D. Spielberger, Anxiety: Current Trends in Theory and Research. Academic Press, in press. (Presented at Symposium on Anxiety, Tallahassee, Florida, 4/1970).
- Epstein, S., and Fenz, W. D. "Steepness of approach and avoidance gradients in humans as a function of experience: Theory and experiment." Journal of Experimental Psychology, 1965, 70, 1-12.
- Epstein, S., and Kling, J. S. "Reactivity during anticipation and impact of an unavoidable noxious stimulus as a function of time ambiguity." (unpublished study, 1970).
- Epstein, S., Solomon, G., and Brent, G. "The effect of the anticipation and impact of an unavoidable noxious stimulus upon motor performance, autonomic arousal, and ratings of stimulus intensity." (unpublished study, 1970).
- Fenz, W. D., and Epstein, S. "Gradients of physiological arousal of experienced and novice parachutists as a function of an approaching jump." Psychosomatic Medicine, 1967, 29, 33-51.
- Katkin, E. S. "The Relationship between a measure of transitory anxiety and spontaneous autonomic activity." Journal of Abnormal Psychology, 1966, 71, No. 2, 142-146.
- Katkin, E. S. "Relationship between manifest anxiety and two indices of autonomic response to stress." Journal of Personality and Social Psychology, 1965, 2, 324-333.
- Lazarus, R. S., Averill, J. R., and Opton, E. M. Jr. "Towards a cognitive theory of emotion." In M. Arnold (Ed.). Third International Symposium on Feelings and Emotions. New York: Academic Press, 1970.

- Lykken, D. T., Rose, R., Luther, B., and Maley, M. "Correcting psychophysiological measures for individual differences in range." Psychological Bulletin, 1966, 66, 481-484.
- Lykken, D. T., and Venables, P. H. "Direct measurement of skin conductance: A proposal for standardization." Psychophysiology, 1971, 8, 656-672.
- Tomaszewski, G., and Epstein, S. "Discrimination between fear and anxiety as revealed in self reports of real-life experience." (unpublished study, 1970).
- Tursky, B., Watson, P. H., and O'Connell, B. N. "A concentric shock electrode for pain stimulation." Psychophysiology, 1965, 1, 296.

APPENDIX A

Results for all Dependent Measures for the
total count-up dimension for all groups.

Mean Heart Rate in B. P. M.

Avoidance-Tapping Group

No-Avoidance-Tapping Group

No-Tapping Group

Prestimulus Heart Rate for total count-up period for all groups .

Mean Phasic Heart Rate for total count-up period for all groups.

Mean Basal Skin Conductance (Micromhos)

Prestimulus Basal Skin Conductance for total count-up period for all groups.

Avoidance-Tapping Group

No-Avoidance Tapping Group

No Tapping Group

Mean number of Nonspecific GSRs for total count-up period for all groups.

APPENDIX B

Example of Self Rating Forms Used in this Experiment.

NAME _____

SUBJECT NO. _____ TRIAL _____

Please check how well each adjective describes your present feelings.

	0 Not at All	1 Slightly	2 Moderately	3 Definitely
hopeless	_____	_____	_____	_____
at-ease	_____	_____	_____	_____
scared	_____	_____	_____	_____
calm	_____	_____	_____	_____
irritated	_____	_____	_____	_____
blocked	_____	_____	_____	_____
jittery	_____	_____	_____	_____
threatened	_____	_____	_____	_____
worried	_____	_____	_____	_____
keyed-up	_____	_____	_____	_____
frustrated	_____	_____	_____	_____
panicky	_____	_____	_____	_____
queasy	_____	_____	_____	_____
angry	_____	_____	_____	_____
frightened	_____	_____	_____	_____
annoyed	_____	_____	_____	_____
on-edge	_____	_____	_____	_____
terrified	_____	_____	_____	_____
troubled	_____	_____	_____	_____
insecure	_____	_____	_____	_____
relaxed	_____	_____	_____	_____
tense	_____	_____	_____	_____
helpless	_____	_____	_____	_____
butterflies-in-stomach	_____	_____	_____	_____

APPENDIX C

Printouts for all Analyses of Variance Performed.

Tapping Rate for 2 tap groups

	MEAN	1	1420363.4083	120.000 (1)	3,000 (4)
1	1420363.4083	1	85.0000	60.000 (2)	3,000 (4)
2	1097.7167	2	2.43668	40.000 (3)	1,000 (6)
3	63621.9167	3	1074.2610	3.000 (4)	
4	5073.0167	2	11.3333	20.000 (5)	1,000 (6)
5	17124.1333	76	224.0016	1.000 (6)	

MEAN 109.55023

ELL MEAN

	Avail. Tapping	No Avoidance Tapping
C =	110.4000	105.71667
T =	112.9500	112.0000
T =	107.1000	112.7500
T =	115.9000	100.9000

CELL DEVIATIONS

	Y(C..)	- Y(C..)
C =	0.84167	-0.84167
X(C..T)	- X(C..T)	

	Y	- Y
T =	2.35167	-2.35167
X(C..T)	- X(C..T)	
T =	-6.89167	-2.11657
T =	6.69167	2.1167

$$\hat{x} = \frac{(M_1 - M_2) - E(M_1 - M_2)}{\text{est } \sigma_{diff}}$$

AV - Tap NO - AV - Tap

$M_1 = 107.10$	$M_2 = 118.8$
$S_1 =$	$S_2 =$
$N_1 = 60$	$N_2 = 60$

SOURCE

SUM OF SQUARES

DEGREES OF FREEDOM

MEAN SQUARE
EXPECTED MEAN SQUARE
F
Treatment, Error, Total
Grand exp. error - all 3 groups

1	MEAN	7261068.5762	1	7261068.5762	840.000 (1)	14.000(12)
2	C	22308.7167	2	3618.11124	280.000 (2)	14.000(12)
3	P	3376.0190	1	3376.0190	420.000 (3)	14.000(12)
4	T	3055.2429	1	12.85233055	420.000 (4)	2.000(17)
5	W	37153.6238	6	67.4526192	120.000 (5)	2.000(18)
6	CP	35.7881	2	17.8940	140.000 (6)	14.000(12)
7	CT	635.3643	2	317.6821	140.000 (7)	2.000(17)
8	PT	269.7333	1	269.7333	210.000 (8)	2.000(17)
9	CH	17110.1333	12	15.53331425	40.000 (9)	2.000(18)
10	PH	427.7476	6	71.2913	60.000(10)	2.000(18)
11	TW	532.8238	6	88.8040	60.000(11)	1.000(20)
12	S(CP)	166700.6143	54	3087.048412	14.000(12)	
13	CPT	975.7881	2	487.8940	70.000(13)	2.000(17)
14	CPW	846.0952	12	70.5079	20.000(14)	2.000(18)
15	CTW	1011.9190	12	84.3266	20.000(15)	1.000(20)
16	PTW	141.5000	6	23.5833	50.000(16)	1.000(20)
17	ST(CP)	12841.5257	54	237.807117	7.000(17)	
18	SW(CP)	29742.6857	324	91.798418	2.000(18)	
19	CPTW	398.7286	12	33.2274	10.000(19)	
20	STW(CP)	15757.3143	324	48.633720	1.000(20)	

EAN 92,97381

ELL MEANS

C =	1	99,62500	2	92,22857	3	87,06786
P =	1	94,97857	2	90,96905		
T =	1	94,88095	2	91,06667		
W =	1	87,10000	2	88,17500	3	90,14167
					4	90,00000
					5	101,75000
					6	104,84167
					7	88,80833
P =	1	101,75000	2	97,50000		
	2	93,94286		90,51429		
	3	89,24286		84,89286		
T =	1	100,44286	2	98,80714		
	2	94,18571		90,27143		
	3	90,01429		84,12143		
T =	1	97,45238	2	92,50476		
	2	92,30952		89,62857		
W =	1	89,77500	2	90,55000	3	95,20000
	2	86,75000		87,37500	4	94,45000
	3	84,77500		86,60000	5	115,50000
					6	121,10000
					7	90,80000
						88,57500
						87,05000
W =	1	80,10000	2	80,30000	3	80,00000
					4	81,66667
					5	105,15000
					6	107,46667
					7	90,00000

C = C₁ = C₂ = C₃

C₁ = A₁ Top
C₂ = B₁ 1-1, Top
C₃ = C₁ = C₂

P = S₁ = S₂ = S₃

T = T₁ = T₂

T₁ = T₂ = T₃

W = W₁ = W₂ = W₃

W₁ = 1
W₂ = 4
W₃ = 7
W₄ = 8
W₅ = 9
W₆ = 10
W₇ = 12

1	6317067.3347	1	6317067.3347	720.000	(1)	12.000(12)
2	23852.4111	2	4.60 ^x 11926.2056	240.000	(2)	12.000(12)
3	3281.0681	1	3281.0681	360.000	(3)	12.000(12)
4	2749.5125	1	11.95 ^{xx} 2749.5125	360.000	(4)	6.000(17)
5	34724.4569	5	68.94 ^{xx} 6944.8914	120.000	(5)	2.000(14)
6	73.6111	2	39.3056	120.000	(6)	12.000(12)
7	633.0333	2	319.0167	120.000	(7)	6.000(17)
8	465.6125	1	465.6125	180.000	(8)	6.000(17)
9	15281.9222	10	15.17 ^{xx} 1528.1922	40.000	(9)	2.000(14)
10	342.6230	5	68.5247	60.000	(10)	2.000(14)
11	252.1792	5	51.8358	60.000	(11)	1.000(20)
12	140076.1503	54	2594.9029	12.000	(12)	6.000(17)
13	140076.1503	2	309.3167	20.000	(13)	2.000(12)
14	543.9222	10	54.3922	20.000	(14)	2.000(12)
15	927.3000	10	90.0300	20.000	(15)	1.000(20)
16	133.9125	5	27.3025	30.000	(16)	1.000(20)
17	12425.4583	54	230.1011	8.000	(17)	
18	27198.9917	270	100.7370	2.000	(18)	
19	343.7667	10	34.3767	10.000	(19)	1.000(20)
20	13150.0917	270	48.7040	1.000	(20)	

FAN 93.66806 NO NO
 ALL MEANS *Appearance* *NO Tapping*
NO Tapping

C =	1	101.09563	92.83750	87.07083
P =	1	Subtotal	66 Subtotal	72
T =	1	95.80278	91.53333	72
A =	1	95.62222	91.71389	72
P =	1	37.10000	39.17500	90.14167
=	1	Subtotal	2 NO Subtotal	1
=	2	103.67500	98.51667	
=	3	94.62500	91.05000	
=	3	39.10833	55.03333	

T =	1	102.12500	100.06667	
=	1	94.42500	91.25000	
=	3	90.31667	63.82500	
T =	1	92.56111	93.04444	
=	2	92.65333	90.39333	
A =	1	92.77500	90.55000	
=	2	92.75000	87.37500	
=	3	92.77500	86.60000	
A =	1	92.77500	92.03333	
=	2	92.77500	92.03333	
=	3	92.77500	92.03333

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	MEAN SQUARE	EXPECTED MEAN SQUARE
1 MEAN	4513216.5333	1	4513216.5333	480.000 (1)
2 C	8184.0083	1	8184.0083	240.000 (2)
3 P	2288.1333	1	2288.1333	240.000 (3)
4 T	1147.0083	1	1147.0083	240.000 (4)
5 W	46193.4417	5	9238.6883	80.000 (5)
6 CP	75.2083	1	75.2083	120.000 (6)
7 CT	128.1333	1	128.1333	120.000 (7)
8 PT	1.0083	1	1.0083	120.000 (8)
9 CW	3331.4667	5	666.2933	40.000 (9)
10 PW	517.1417	5	103.4283	40.000 (10)
11 TW	192.1667	5	38.4333	40.000 (11)
12 S(CP)	97133.1167	36	2698.1421	12.000 (12)
13 CPT	197.6333	1	197.6333	60.000 (13)
14 CPW	180.7667	5	36.1533	20.000 (14)
15 CTW	534.3417	5	106.8683	20.000 (15)
16 PTW	140.4667	5	28.0933	20.000 (16)
17 ST(CP)	9266.5500	36	257.4022	6.000 (17)
18 SW(CP)	23079.1833	180	128.2121	2.000 (18)
19 CPTW	221.4417	5	44.2883	10.000 (19)
20 STW(CP)	9442.7500	180	52.4597	1.000 (20)

MEAN 96.95667

CELL MEANS

C =	1	2
	101.00583	92.83750
P =	1	2
	99.15000	94.78333
T =	1	2
	98.51250	95.42083
W =	1	2
	88.26250	89.96250
P =	1	2
	103.67500	99.51667
	94.62500	91.05000
T =	1	2
	102.12500	100.06667
	94.95000	90.77500
P =	1	2
	100.65000	97.55000
	96.37500	93.19167
W =	1	2
	82.77500	90.55000
	86.75000	87.37500
W =	1	2
	91.07500	91.20000
	85.45000	84.72500

Heart Rate - *pseudonotus*
(1, 4, 7, 8, 9, 10)

C = Groups
C₁ = Avoid - Tap
C₂ = No Avoid - Tap
C₃ = Control

P = Pain (Shark or no shark on Tr #1)
P₁ = Shark on Tr #1
P₂ = no shark on Tr #1

T = trials
T₁ = trial #1
T₂ = Trial 6

C =	1	2
	94.45000	115.50000
	88.07500	101.77500
W =	1	2
	95.20000	94.45000
	89.92500	88.07500
W =	1	2
	93.32500	91.77500
	90.80000	90.75000
P =	1	2
	91.20000	112.32500
	84.72500	104.95000

SOURCE SUM OF SQUARES DEGREES OF FREEDOM EXPECTED MEAN SQUARE

Test Rate
pre 1,4,7,8

1	MEAN	3789630.2083	1	3789630.2083	480.000 (1)	8,000 (12)
2	C	3357.6792	2	1678.8396	166.000 (2)	8,000 (12)
3	P	1505.2083	1	1505.2083	240.000 (3)	8,000 (12)
4	T	1293.6333	1	1293.6333	240.000 (4)	4,000 (17)
5	W	781.0750	3	260.3583	120.000 (5)	2,000 (18)
6	CP	72.4542	2	36.2271	80.000 (6)	6,000 (12)
7	CT	300.6792	2	150.3396	80.000 (7)	4,000 (17)
8	PT	213.3333	1	213.3333	120.000 (8)	4,000 (17)
9	CW	368.4875	6	61.4146	40.000 (9)	2,000 (18)
10	PW	82.6083	3	27.5361	60.000 (10)	2,000 (18)
11	TW	114.5500	3	38.1833	60.000 (11)	1,000 (20)
12	S(CP)	78465.9500	54	1453.0731	8,000 (12)	4,000 (17)
13	CPT	486.9542	2	243.4771	40.000 (13)	2,000 (18)
14	CPW	412.6792	6	68.7799	20.000 (14)	1,000 (20)
15	CTW	360.6875	6	60.1146	20.000 (15)	1,000 (20)
16	PTW	106.6500	3	35.5500	30.000 (16)	1,000 (20)
17	ST(CP)	10415.9000	54	192.8870	4,000 (17)	
18	SW(CP)	7723.6500	162	47.6769	2,000 (18)	
19	CPTW	211.3125	6	35.2187	10.000 (19)	
20	STW(CP)	6510.3000	162	40.1870	1,000 (20)	

Test Rate

pre 1,4,7,8

MEAN 88.65417

CELL MEANS

C = 1 2 3
92.49375 87.78125 86.28750

P = 1 2
90.62500 87.08333

T = 1 2
90.49583 87.21250

W = 1 2 3
87.10000 88.17500 90.14167

P = 1 2
94.66250 90.32500
89.02500 86.53750
88.18750 84.38750

T = 1 2
93.83750 91.15000
88.63750 86.92500
89.01250 83.56250

P = 1 2
92.93333 88.31667
88.05833 85.10833

C = 1 2 3
89.77500 90.55000 95.20000
86.75000 87.37500 88.92500
84.77500 86.60000 86.30000

C₁ Avoid, top C₂ No Avoid, top C₃ No Avoid, No Top

T₁ = Trial #1
T₂ = Trial #2

P₁ = Shock on Trial #1
P₂ = No Shock on Trial #1

W₁ W₂ W₃ W₄
1 4 7 8

PRESTIMULUS level is to be for 2
Tap groups - pre-tap placed

1	MEAN	2599926.0500	1	320.000 (1)	8.000 (12)
2	C	1776.6125	1	160.000 (2)	8.000 (12)
3	P	931.6125	1	160.000 (3)	8.000 (12)
4	T	485.1125	1	160.000 (4)	4.000 (17)
5	W	789.4000	3	80.000 (5)	2.000 (18)
6	CP	68.4500	1	80.000 (6)	8.000 (12)
7	CT	4.0500	1	80.000 (7)	4.000 (17)
8	PT	9.8300	1	80.000 (8)	4.000 (17)
9	CW	208.3375	3	40.000 (9)	2.000 (18)
10	PW	250.2375	3	40.000 (10)	2.000 (18)
11	TW	78.9375	3	40.000 (11)	1.000 (20)
12	S(CP)	51540.2750	36	8.000 (12)	
13	CPT	15.3125	1	40.000 (13)	4.000 (17)
14	CPW	86.5000	3	20.000 (14)	2.000 (18)
15	CTW	6.6000	3	20.000 (15)	1.000 (20)
16	PTW	122.8500	3	20.000 (16)	1.000 (20)
17	ST(CP)	7738.7250	36	4.000 (17)	
18	SW(CP)	5657.5250	108	2.000 (18)	
19	CPTW	48.1375	3	10.000 (19)	
20	STW(CP)	4919.4750	108	1.000 (20)	

MEAN 90.13750

CELL MEANS

C =	1	92.49375	2	87.78125
P =	1	91.84375	2	88.43125
T =	1	91.36875	2	88.90625
W =	1	88.26250	2	89.96250
C =	1	94.66250	2	90.32500
	2	89.02500		86.53750
T =	1	93.63750	2	91.15000
C =	1	88.90100	2	85.66250
P =	1	92.93000	2	90.78750
	2	89.83750		87.02500
W =	1	89.77500	2	90.55000
C =	1	86.75000	2	87.37500
P =	1	91.07500	2	91.20000
	2	85.45000		86.72500

Heart Rate prestimulus (1,4,7,8)

C = Groups
 C₁ = Avoid - Tap
 C₂ = no-Avoid - Tap
 C₃ = Control
 P = Pain (Shock on T₁ or not)
 P₁ = Shock on T₁#1
 P₂ = no shock on T₁#1

T = Taps
 T₁ = Tap#1
 T₂ = Tap#2

W = Stimulus
 W₁ = Stimulus 1

4- Total count up past

1	MEAN	4048.0190	1	4048.0190	840.000 (1)	14,000(12)
2	C	459.0310	2	229.5155	280.000 (2)	14,000(12)
3	P	137.6190	3	137.6190	420.000 (3)	14,000(12)
4	T	7.2429	4	7.2429	420.000 (4)	7,000(17)
5	W	9011.1143	5	1501.8524	120.000 (5)	2,000(18)
6	C	32.1024	6	16.0512	140.000 (6)	14,000(12)
7	P	116.3786	7	58.1893	140.000 (7)	7,000(17)
8	T	152.5762	8	152.5762	210.000 (8)	7,000(17)
9	W	2355.0357	9	196.2530	40.000 (9)	2,000(18)
10	C	792.2143	10	132.0357	60.000 (10)	2,000(18)
11	P	235.6238	11	99.2706	60.000 (11)	1,000(20)
12	T	3016.8000	12	55.8667	14.000 (12)	
13	W	34.3738	13	17.1869	70.000 (13)	7,000(17)
14	C	1412.9643	14	117.7470	20.000 (14)	2,000(18)
15	P	714.7548	15	59.5629	20.000 (15)	1,000(20)
16	T	101.5905	16	16.9317	30.000 (16)	1,000(20)
17	W	3154.7143	17	58.4206	7.000 (17)	
18	C	22679.1000	18	69.9972	2.000 (18)	
19	P	832.7595	19	69.3966	10.000 (19)	1,000(20)
20	T	19211.9857	20	59.2963	1.000 (20)	

Δ Heat Rate

C =	1	3,10357	2	1,29286	3	2,18929	C =	Grading
P =	1	1,79048	2	2,60000				2: Rev. Top
T =	1	2,28810	2	2,10238				2: No. Rev. Top
W =	1	1,80833	2	1,88333	3	2,89167	P =	Shovel on Tel
P =	1	2,55000	2	3,65714	3	2,89167	P =	Shovel on Tel
	2	1,16429	3	1,42143	4	8,55833	W =	Atwood
	3	1,65714	2	2,72143	5	3,36667		W5-9
T =	1	2,72857	2	3,47857	6	0.13333		W2-16
C =	1	1,62857	2	0,75714	7	3,00833		W3-7
	2	2,30714	3	2,07143				W4-8
P =	1	1,45714	2	2,12381				
	2	3,11905	3	2,06095				
W =	1	3,07500	2	3,40000	3	2,57500		
C =	1	0,07500	2	-0,20000	4	3,62500		
	2	2,27500	3	2,45000	5	2,47500		
P =	1	2,08333	2	0,38333	6	2,80000		
	2	2,08333	3	0,38333	7	2,80000		
W =	1	3,07500	2	3,40000				
C =	1	0,07500	2	-0,20000				
	2	2,27500	3	2,45000				
P =	1	2,08333	2	0,38333				
	2	2,08333	3	0,38333				
W =	1	3,07500	2	3,40000				
C =	1	0,07500	2	-0,20000				
	2	2,27500	3	2,45000				
P =	1	2,08333	2	0,38333				
	2	2,08333	3	0,38333				
W =	1	3,07500	2	3,40000				
C =	1	0,07500	2	-0,20000				
	2	2,27500	3	2,45000				
P =	1	2,08333	2	0,38333				
	2	2,08333	3	0,38333				
W =	1	3,07500	2	3,40000				
C =	1	0,07500	2	-0,20000				
	2	2,27500	3	2,45000				
P =	1	2,08333	2	0,38333				
	2	2,08333	3	0,38333				
W =	1	3,07500	2	3,40000				
C =	1	0,07500	2	-0,20000				
	2	2,27500	3	2,45000				
P =	1	2,08333	2	0,38333				
	2	2,08333	3	0,38333				
W =	1	3,07500	2	3,40000				
C =	1	0,07500	2	-0,20000				
	2	2,27500	3	2,45000				
P =	1	2,08333	2	0,38333				
	2	2,08333	3	0,38333				
W =	1	3,07500	2	3,40000				
C =	1	0,07500	2	-0,20000				
	2	2,27500	3	2,45000				
P =	1	2,08333	2	0,38333				
	2	2,08333	3	0,38333				
W =	1	3,07500	2	3,40000				
C =	1	0,07500	2	-0,20000				
	2	2,27500	3	2,45000				
P =	1	2,08333	2	0,38333				
	2	2,08333	3	0,38333				
W =	1	3,07500	2	3,40000				
C =	1	0,07500	2	-0,20000				
	2	2,27500	3	2,45000				
P =	1	2,08333	2	0,38333				
	2	2,08333	3	0,38333				
W =	1	3,07500	2	3,40000				
C =	1	0,07500	2	-0,20000				
	2	2,27500	3	2,45000				
P =	1	2,08333	2	0,38333				
	2	2,08333	3	0,38333				
W =	1	3,07500	2	3,40000				
C =	1	0,07500	2	-0,20000				
	2	2,27500	3	2,45000				
P =	1	2,08333	2	0,38333				
	2	2,08333	3	0,38333				
W =	1	3,07500	2	3,40000				
C =	1	0,07500	2	-0,20000				
	2	2,27500	3	2,45000				
P =	1	2,08333	2	0,38333				
	2	2,08333	3	0,38333				
W =	1	3,07500	2	3,40000				
C =	1	0,07500	2	-0,20000				
	2	2,27500	3	2,45000				
P =	1	2,08333	2	0,38333				
	2	2,08333	3	0,38333				
W =	1	3,07500	2	3,40000				
C =	1	0,07500	2	-0,20000				
	2	2,27500	3	2,45000				
P =	1	2,08333	2	0,38333				
	2	2,08333	3	0,38333				
W =	1	3,07500	2	3,40000				
C =	1	0,07500	2	-0,20000				
	2	2,27500	3	2,45000				
P =	1	2,08333	2	0,38333				
	2	2,08333	3	0,38333				
W =	1	3,07500	2	3,40000				
C =	1	0,07500	2	-0,20000				
	2	2,27500	3	2,45000				
P =	1	2,08333	2	0,38333				
	2	2,08333	3	0,38333				
W =	1	3,07500	2	3,40000				
C =	1	0,07500	2	-0,20000				
	2	2,27500	3	2,45000				
P =	1	2,08333	2	0,38333				
	2	2,08333	3	0,38333				
W =	1	3,07500	2	3,40000				
C =	1	0,07500	2	-0,20000				
	2	2,27500	3	2,45000				
P =	1	2,08333	2	0,38333				
	2	2,08333	3	0,38333				
W =	1	3,07500	2	3,40000				
C =	1	0,07500	2	-0,20000				
	2	2,27500	3	2,45000				
P =	1	2,08333	2	0,38333				
	2	2,08333	3	0,38333				
W =	1	3,07500	2	3,40000				
C =	1	0,07500	2	-0,20000				
	2	2,27500	3	2,45000				
P =	1	2,08333	2	0,38333				
	2	2,08333	3	0,38333				
W =	1	3,07500	2	3,40000				
C =	1	0,07500	2	-0,20000				
	2	2,27500	3	2,45000				
P =	1	2,08333	2	0,38333				
	2	2,08333	3	0,38333				
W =	1	3,07500	2	3,40000				
C =	1	0,07500	2	-0,20000				
	2	2,27500	3	2,45000				
P =	1	2,08333	2	0,38333				
	2	2,08333	3	0,38333				
W =	1	3,07500	2	3,40000				
C =	1	0,07500	2	-0,20000				
	2	2,27500	3	2,45000				
P =	1	2,08333	2	0,38333				
	2	2,08333	3	0,38333				
W =	1	3,07500	2	3,40000				
C =	1	0,07500	2	-0,20000				
	2	2,27500	3	2,45000				
P =	1	2,08333	2	0,38333				
	2	2,08333	3	0,38333				
W =	1	3,07500	2	3,40000				
C =	1	0,07500	2	-0,20000				
	2	2,27500	3	2,45000				
P =	1	2,08333	2	0,38333				
	2	2,08333	3	0,38333				
W =	1	3,07500	2	3,40000				
C =	1	0,07500	2	-0,20000				
	2	2,27500	3	2,45000				
P =	1	2,08333	2	0,38333				
	2	2,08333	3	0,38333				
W =	1	3,07500	2	3,40000				
C =	1	0,07500	2	-0,20000				
	2	2,27500	3	2,45000				
P =	1	2,08333	2	0,38333				
	2	2,08333	3	0,38333				
W =	1	3,07500	2	3,40000				
C =	1	0,07500	2	-0,20000				
	2	2,27500	3	2,45000				
P =	1	2,08333	2	0,38333				
	2	2,08333	3	0,38333				
W =	1	3,07500	2	3,40000				
C =	1	0,07500	2	-0,20000				
	2	2,27500	3	2,45000				
P =	1	2,08333	2	0,38333				
	2	2,08333	3	0,38333				
W =	1	3,07500	2	3,40000				
C =	1	0,07500	2	-0,20000				
	2	2,27500	3	2,45000				
P =	1	2,08333	2	0,38333				
	2	2,08333	3	0,38333				
W =	1	3,07500	2	3,40000				
C =	1	0,07500	2	-0,20000				
	2	2,27500	3	2,45000				
P =	1	2,08333	2	0,38333				
	2	2,08333	3	0,38333				
W =	1	3,07500	2	3,40000				
C =	1	0,07500	2	-0,20000				
	2	2,27500	3	2,45000				
P =	1	2,08333	2	0,38333				
	2	2,08333	3	0,38333				
W =	1	3,07500	2	3,40000				
C =	1	0,075						

FURTHER Δ standards for all groups
 for 100% tapping

1	4221.4917	1	4221.4917	600.000 (1)	10.000 (12)
2	450.1433	2	3.49*	249.7717	10.000 (12)
3	491.5350	1	191.5350	300.000 (3)	10.000 (12)
4	59.5350	1	59.5350	300.000 (4)	5.000 (17)
5	3749.5200	4	12.62**	937.3775	2.000 (18)
6	24.3300	2		42.1050	10.000 (12)
7	264.700	2		132.3350	5.000 (17)
8	441.3350	1		141.1350	5.000 (17)
9	1454.3000	8	2.79**	207.1112	2.000 (18)
10	534.7000	4		133.6975	2.000 (18)
11	115.4507	4		23.3042	1.000 (20)
12	3049.9000	54		11.2704 $\leftarrow$ 12	
13	15.4300	2		9.2150	5.000 (17)
14	774.1700	8		96.7710	2.000 (18)
15	334.0633	8		41.7579	1.000 (20)
16	91.4233	4		23.2500	1.000 (20)
17	3319.5300	54		61.4700 $\leftarrow$ 17	
18	16046.5000	216		14.2090 $\leftarrow$ 18	
19	655.0367	8		56.8790	10.000 (19)
20	14634.5200	216		67.7470 $\leftarrow$ 20	1.000 (20)

MEAN 3.77167

CELL MEANS *Avoidance* *NO Avoidance*
Tapping *NO Tapping*

C = $\frac{1}{1}$ 3.08000
 P = $\frac{1}{1}$ 3.08000
 T = $\frac{1}{1}$ 3.08000

C = $\frac{1}{1}$ 3.08000
 P = $\frac{1}{1}$ 3.08000
 T = $\frac{1}{1}$ 3.08000

C = $\frac{1}{1}$ 3.08000
 P = $\frac{1}{1}$ 3.08000
 T = $\frac{1}{1}$ 3.08000

C = $\frac{1}{1}$ 3.08000
 P = $\frac{1}{1}$ 3.08000
 T = $\frac{1}{1}$ 3.08000

C = $\frac{1}{1}$ 3.08000
 P = $\frac{1}{1}$ 3.08000
 T = $\frac{1}{1}$ 3.08000

C = $\frac{1}{1}$ 3.08000
 P = $\frac{1}{1}$ 3.08000
 T = $\frac{1}{1}$ 3.08000

C = $\frac{1}{1}$ 3.08000
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 T = $\frac{1}{1}$ 3.08000

C = $\frac{1}{1}$ 3.08000
 P = $\frac{1}{1}$ 3.08000
 T = $\frac{1}{1}$ 3.08000

C = $\frac{1}{1}$ 3.08000
 P = $\frac{1}{1}$ 3.08000
 T = $\frac{1}{1}$ 3.08000

C = $\frac{1}{1}$ 3.08000
 P = $\frac{1}{1}$ 3.08000
 T = $\frac{1}{1}$ 3.08000

FREEDOM

Δ function for 2 mps
F for antipathy prior

1	MEAN	6440.0625	1	5.71*	6440.0625	400.000 (1)	10.000 (12)
2	C	382.2025	1		382.2025	200.000 (2)	10.000 (12)
3	P	117.7225	1		117.7225	200.000 (3)	10.000 (12)
4	I	0.7225	1		0.7225	200.000 (4)	5.000 (17)
5		4808.5500	4	14.88**	1202.1375	80.000 (5)	2.000 (18)
6	CP	83.7225	1		83.7225	100.000 (6)	10.000 (12)
7	CT	175.5625	1		175.5625	100.000 (7)	5.000 (17)
8	PT	52.5625	1		52.5625	100.000 (8)	5.000 (17)
9	CH	457.8100	4		114.4525	40.000 (9)	2.000 (18)
10	PR	373.1900	4		93.2975	40.000 (10)	2.000 (18)
11	TR	224.9400	4		56.2350	40.000 (11)	1.000 (20)
12	S(CP)	2409.0900	36		66.9442	10.000 (12)	
13	CPT	0.4225	1		0.4225	20.000 (13)	5.000 (17)
14	CPK	265.4900	4		96.3725	20.000 (14)	2.000 (18)
15	CTW	101.7000	4		25.4250	20.000 (15)	1.000 (20)
16	PTW	104.7000	4		26.1750	20.000 (16)	1.000 (20)
17	ST(CP)	2515.4300	36		69.9000	5.000 (17)	
18	SK(CP)	11633.7600	144		80.7900	2.000 (18)	
19	CPTA	385.1400	4		95.2451	10.000 (19)	1.000 (20)
20	STW(CP)	3586.3200	144		59.6272	1.000 (20)	

MEAN 4,01250

CELL MEANS

(C = 1 2
3,03500
P = 1 2
3,47000 4,55500

T = 1 2
4,05500 3,97000

H = 1 2
1,57500 1,60000
3,10000 3,12000

P = 1 2
3,99000 5,90000
2,95000 3,12000

T = 1 2
4,37000 5,61000
3,74000 2,33000

P = 1 2
3,15000 3,79000
4,15000 4,15000

H = 1 2
3,07500 3,40000
0,07500 0,20000

P = 1 2
0,67500 0,70000
2,47500 2,50000

post-pub 8

10.84500
2.96250

3 2,57500 13,00000 5
3,62500 8,62000 2,90000 3,02500
3 2,02500 12,20000 5
4,17500 9,40000 1,75000 4,17500

ANALYSIS OF VARIANCE FOR DEPENDENT VARIABLE 1

SOURCE SUM OF SQUARES DEGREES OF FREEDOM MEAN SQUARE EXPECTED MEAN SQUARE

Heart Rate for per-sec

F

oil groups

1	1733.6111	1	1733.6111	366.000 (1)	6.000(12)
2	212.9556	2	106.4778	120.000 (2)	6.000(12)
3	265.9444	1	266.9444	180.000 (3)	6.000(12)
4	103.9000	1	108.9000	180.000 (4)	3.000(17)
5	87.9389	2	43.9194	120.000 (5)	2.000(18)
6	9.8222	2	4.4111	60.000 (6)	6.000(12)
7	198.4667	2	99.2333	60.000 (7)	3.000(17)
8	157.3444	1	157.3444	96.000 (8)	3.000(17)
9	291.0444	4	72.7611	40.000 (9)	2.000(18)
10	233.5389	2	116.7694	60.000(10)	2.000(18)
11	61.2167	2	30.6083	60.000(11)	1.000(20)
12	2342.0000	54	43.3704	6.000(12)	
13	23.9222	2	14.4111	30.000(13)	3.000(17)
14	603.8444	4	150.9611	20.000(14)	2.000(18)
15	300.2667	4	75.0667	20.000(15)	1.000(20)
16	65.0056	2	32.5028	30.000(16)	1.000(20)
17	4185.8000	54	77.5333	3.000(17)	
18	6964.4000	108	64.4652	2.000(18)	
19	151.7778	4	37.9444	10.000(19)	1.000(20)
20	6645.4000	108	61.5407	1.000(20)	

MEAN 2.19444

CFL YEARS

Δ Heart Rate

C =	1	2	3	
	3.01667	1.16667	2.40000	
P =	1	2		
	1.33333	3.95556		
T =	1	2		
	2.74444	1.64444		
W =	1	2	3	
	1.80833	1.88333	2.89167	
P =	1	2		
	1.96667	4.06667		
	0.30000	2.93333		
	1.73333	3.06667		
T =	1	2		
	2.51667	3.51667		
	2.23333	0.10000		
	3.48333	1.31667		
P =	1	2		
	1.22222	1.44444		
	4.26667	1.84444		
W =	1	2	3	
	3.07500	3.40000	2.57500	
	0.07500	-0.20000	3.62500	
	0.07500	0.45000	0.47500	

C = Group

c₁ = Avoid - Tap

c₂ = No Avoid - Tap

c₃ = Control

P = Pair (Shock or no shock)

p₁ = Shock on Tr #1

p₂ = no shock on Tr #1

W = Stimuli

w₁ = Stimulus 1

w₂ = 4

w₃ = 7

100 per day - provided

1	1050.0167	1	1020.0167	240.000	(1)	6.000	(12)
2	205.3500	1	205.3500	320.000	(2)	6.000	(12)
3	220.4167	1	220.4167	120.000	(3)	6.000	(12)
4	19.2667	1	19.2667	120.000	(4)	3.000	(17)
5	122.0333	2	61.0167	80.000	(5)	2.000	(18)
6	2.0167	1	2.0167	80.000	(6)	6.000	(12)
7	147.2667	1	147.2667	80.000	(7)	3.000	(17)
8	62.2667	1	62.2667	80.000	(8)	3.000	(17)
9	255.9000	2	127.9500	40.000	(9)	2.000	(18)
10	1.6333	2	0.8167	40.000	(10)	2.000	(18)
11	186.2333	2	93.1167	40.000	(11)	1.000	(20)
12	1646.5333	36	45.7377	6.000	(12)		
13	17.0667	1	17.0667	30.000	(13)	3.000	(17)
14	173.6333	2	86.8167	20.000	(14)	2.000	(18)
15	65.1333	2	34.0667	20.000	(15)	1.000	(20)
16	70.9333	2	35.4667	20.000	(16)	1.000	(20)
17	2872.4667	36	79.9574	3.000	(17)		
18	5151.4667	72	71.9647	2.000	(18)		
19	140.0333	2	70.0167	10.000	(19)	1.000	(20)
20	4539.3333	72	63.0463	1.000	(20)		

2,09167

SELL REAS NV Top
(C = 1 2
3,0167 1,1667)

P = 1 2
1,1333 3,05000

T = 1 2
2,37500 1,05333

W = 1 2 3
1,57500 1,00000 3,10000

C = 1 2
1,9667 4,0667
0,3000 2,03333

T = 1 2
2,5167 3,5167
2,23333 0,10000

P = 1 2
0,86233 1,33333
3,1667 2,23333

C = 1 2 3
3,07500 3,50000 2,57500
0,07500 0,20000 3,62500

P = 1 2 3
0,67500 0,70000 2,02500
2,47500 2,20000 4,17500

Delta Hunt Date
(post 10 - pre 10)

1	1	120,000 (3)	2,000 (8)
2	2	40,000 (2)	2,000 (8)
3	3	60,000 (3)	2,000 (8)
4	4	60,000 (4)	1,000 (10)
5	5	20,000 (5)	2,000 (8)
6	6	20,000 (6)	1,000 (10)
7	7	30,000 (7)	1,000 (10)
8	8	2,000 (8)	1,000 (10)
9	9	10,000 (9)	1,000 (10)
10	10	1,000 (10)	

*315

MEAN = 0.07500

CELL MEAN

C = 1	1	120,000	2,000
P = 1	1	0.62500	0.75000

T = 1

T = 2

C = 1	1	2,000	2,000
C = 2	2	2,000	2,000
C = 3	3	2,000	2,000

trend

C = 1	1	2,000	2,000
C = 2	2	2,000	2,000
C = 3	3	2,000	2,000

P = 1	1	0.62500	0.75000
P = 2	2	0.62500	0.75000

T = 1

T = 2

T = 3

T = 4

T = 5

T = 6

T = 7

T = 8

CELL MEAN

MEAN

Delta Hunt Date
(post 10 - pre 10)

T₁ T₂

C₁ C₂

C₁ C₂

C₁ C₂

Groups C₁ = Woodhouse Tapping
C₂ = No Avoidance, Tapping
C₃ = No Avoidance, No Tapping

Trial T₁ = trial #1

T₂ = trial #6

P₁ = shock on Tr #1

P₂ = no shock on Tr #1

For report on 3-7-68

1	MEAN	466648.2880	1	966648.2880	840.000 (1)	14.000(12)
2	C	4869.2483	2	2434.6242	280.000 (2)	14.000(12)
3	P	5.0452	1	5.0452	420.000 (3)	14.000(12)
4	Y	749.3852	1	864.749.3852	420.000 (4)	7.000(17)
5	W	3102.8114	6	53.044.517.1352	120.000 (5)	2.000(18)
6	CP	3620.7484	2	1810.3742	140.000 (6)	14.000(12)
7	CT	114.6087	2	27.3043	140.000 (7)	7.000(17)
8	PT	1.0081	1	1.0081	210.000 (8)	7.000(17)
9	CW	392.8156	12	3.67.52.7346	40.000 (9)	2.000(18)
10	PW	81.3555	6	13.5592	60.000(10)	2.000(18)
11	TW	222.6751	6	10.82.37.1125	60.000(11)	1.000(20)
12	S(CP)	86363.9367	54	1599.3322	14.000(12)	7.000(17)
13	CPT	32.8963	2	16.4482	70.000(13)	2.000(18)
14	CPW	100.4705	12	8.3725	20.000(14)	1.000(20)
15	CTW	65.7419	12	5.4785	20.000(15)	1.000(20)
16	PTW	39.8768	6	6.6461	30.000(16)	
17	ST(CP)	4685.5828	54	86.7701.17	7.000(17)	
18	SW(CP)	2887.1603	324	8.9110.12	2.000(18)	
19	CPTW	42.3934	12	3.5328	10.000(19)	
20	STW(CP)	1111.5867	324	3.4308.20	1.000(20)	

MEAN -23,56976

CELL MEANS *Pre-Tap* *Post-Tap* *Control*
C = 22,29143 26,94196 21,47589
P = 23,64726 23,49226
T = 22,62524 24,51429
W = 21,85667 21,74667 21,88750 24,74250 27,40125 24,26417

Pre-Tap *Post-Tap* *Control*
C = 22,29143 26,94196 21,47589
P = 23,64726 23,49226
T = 22,62524 24,51429
W = 21,85667 21,74667 21,88750 24,74250 27,40125 24,26417

Pre-Tap *Post-Tap* *Control*
C = 22,29143 26,94196 21,47589
P = 23,64726 23,49226
T = 22,62524 24,51429
W = 21,85667 21,74667 21,88750 24,74250 27,40125 24,26417

Pre-Tap *Post-Tap* *Control*
C = 22,29143 26,94196 21,47589
P = 23,64726 23,49226
T = 22,62524 24,51429
W = 21,85667 21,74667 21,88750 24,74250 27,40125 24,26417

Pre-Tap *Post-Tap* *Control*
C = 22,29143 26,94196 21,47589
P = 23,64726 23,49226
T = 22,62524 24,51429
W = 21,85667 21,74667 21,88750 24,74250 27,40125 24,26417

Pre-Tap *Post-Tap* *Control*
C = 22,29143 26,94196 21,47589
P = 23,64726 23,49226
T = 22,62524 24,51429
W = 21,85667 21,74667 21,88750 24,74250 27,40125 24,26417

Pre-Tap *Post-Tap* *Control*
C = 22,29143 26,94196 21,47589
P = 23,64726 23,49226
T = 22,62524 24,51429
W = 21,85667 21,74667 21,88750 24,74250 27,40125 24,26417

Pre-Tap *Post-Tap* *Control*
C = 22,29143 26,94196 21,47589
P = 23,64726 23,49226
T = 22,62524 24,51429
W = 21,85667 21,74667 21,88750 24,74250 27,40125 24,26417

Pre-Tap *Post-Tap* *Control*
C = 22,29143 26,94196 21,47589
P = 23,64726 23,49226
T = 22,62524 24,51429
W = 21,85667 21,74667 21,88750 24,74250 27,40125 24,26417

Pre-Tap *Post-Tap* *Control*
C = 22,29143 26,94196 21,47589
P = 23,64726 23,49226
T = 22,62524 24,51429
W = 21,85667 21,74667 21,88750 24,74250 27,40125 24,26417

Low

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روزنامه

[illegible]

11

$$\left[\begin{array}{cc} x & y \\ z & w \end{array} \right] = \frac{\det A}{\det B}$$
$$\sqrt{4} = 2$$

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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[illegible]

10

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

[illegible]

7 8 9 10 27,9025

[illegible]

7	6	5	0
29,400,000	22,100,000	22,000,000	22,000,000
29,400,000	22,100,000	22,000,000	22,000,000

SOURCE SUM OF SQUARES DEGREES OF FREEDOM MEAN SQUARE EXPECTED MEAN SQUARE

for 2 top groups - anticipatory period

1	MEAN	288176.3528	1	288176.3528	480,000 (1)	12,000 (12)
2	C	2476.7982	1	2476.7982	240,000 (2)	12,000 (12)
3	P	454.0603	1	454.0603	240,000 (3)	12,000 (12)
4	T	424.4100	1	418*	240,000 (4)	6,000 (17)
5	W	2950.3820	5	48.93*	80,000 (5)	2,000 (18)
6	CP	1570.8994	1	1570.8994	120,000 (6)	12,000 (12)
7	CT	112.9565	1	112.9565	120,000 (7)	6,000 (17)
8	PT	12.5615	1	12.5615	120,000 (8)	6,000 (17)
9	CW	50.5635	5	10.1167	40,000 (9)	2,000 (18)
10	PW	34.3027	5	6.8605	40,000 (10)	2,000 (18)
11	CTW	184.7622	5	36.9524	40,000 (11)	1,000 (20)
12	S(CP)	59493.8288	36	1622.0664	12,000 (12)	6,000 (17)
13	CPT	1.3921	1	1.3921	60,000 (13)	2,000 (18)
14	CPW	78.3654	5	15.6731	20,000 (14)	1,000 (20)
15	CTW	53.7927	5	10.7585	20,000 (15)	1,000 (20)
16	PTW	20.9477	5	4.1895	20,000 (16)	1,000 (20)
17	ST(CP)	3658.4525	36	101.6237	6,000 (17)	
18	SW(CP)	2170.8308	180	12.0502	2,000 (18)	
19	CPTW	38.2789	5	7.6558	10,000 (19)	
20	STW(CP)	761.6496	180	4.2325	1,000 (20)	

MEAN 24,50240

CELL MEANS

C = 1 22,23083 2 26,77396

P = 1 23,52979 2 25,47500

(T = 1 23,56208 2 25,44271)

(W = 1 22,43187 2 22,22313 3 22,62187 4 24,33562 5 26,43815 6 28,98312)

P = 1 19,44917 2 25,01250

C = 1 27,61042 2 25,93750

T = 1 20,80542 2 23,65625

C = 1 22,75125 2 24,30833

P = 1 24,37292 2 26,57708

W = 1 19,72750 2 24,71875

C = 1 20,07000 2 24,79375

P = 1 21,42000 2 23,30625

Skin Conductance (prestimulus) 1,4,7,8,9,10

C = Conditions

c₁ = Avoid - Top

c₂ = No Avoid - Top

c₃ = Control

P = Shock or no shock on T1#1

p₁ = Shock on T1#1

p₂ = no shock on T1#1

T = Trials

T₁ = T1#1

T₂ = T1#6

W = Stimuli

w₁ = 1

w₂ = 4

w₃ = 7

w₄ = 8

w₅ = 9

w₆ = 10

ANALYSIS OF VARIANCE FOR DEPENDENT VARIABLE 1

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	MEAN SQUARE	EXPECTED MEAN SQUARE
MEAN	167783.7211	1	167783.7211	320,000 (1)
C	1746.5805	1	1746.5805	160,000 (2)
P	401.8561	1	401.8561	160,000 (3)
T	108.2288	1	108.2288	160,000 (4)
W	220.6903	3	20.81**	80,000 (5)
CP	846.9511	1	846.9511	80,000 (6)
CT	30.6900	1	30.6900	80,000 (7)
PT	22.5250	1	22.5250	80,000 (8)
CH	4.5926	3	1.5309	40,000 (9)
PH	1.9532	3	0.6511	40,000 (10)
TH	1.8556	3	0.6185	40,000 (11)
S(CP)	34121.8643	36	947.8296	8,000 (12)
CP*	5.2788	1	5.2788	40,000 (13)
CPW	38.4232	3	12.8077	20,000 (14)
CTW	21.4831	3	7.1610	20,000 (15)
PTW	8.0418	3	2.6806	20,000 (16)
ST(CP)	2138.7005	36	59.4083	4,000 (17)
SW(CP)	381.7545	108	3.5348	2,000 (18)
CPTW	8.0931	3	2.6977	1,000 (20)
STW(CP)	220.5409	108	2.0420	1,000 (20)

MEAN 22189812

CELL MEANS

C = 20,56187

P = 21,77750

T = 22,31556

W = 22,43187

C = 17,81437

C = 24,96250

P = 21,66125

P = 23,17188

W = 20,07000

W = 24,79375

U =

Skin Conductance (prestimulus)
1, 4, 7, 8

C = Groups
C₁ = Avoid - Tap
C₂ = No Avoid - Tap
C₃ = Control

P = Pain (Shock or no Shock on T₁ #1)
P₁ = Shock on T₁ #1
P₂ = no Shock on T₁ #1

T = trials
T₁ = T₁ #1
T₂ = T₁ #2

W = Stimuli

W₁ = Stimulus 1
W₂ = Stimulus 2

W₃ = Stimulus 3
W₄ = Stimulus 4

ANALYSIS OF VARIANCE FOR DEPENDENT VARIABLE 1

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	MEAN SQUARE	EXPECTED MEAN SQUARE
1 MEAN	3810.9960	1	3810.9960	840,000 (1)
2 C	27.5795	2	13.7898	280,000 (2)
3 P	6,1201	1	6,1201	420,000 (3)
4 T	2,7200	1	2,7200	420,000 (4)
5 W	877.3998	6	146.2333	120,000 (5)
6 CP	2,0302	2	1,0151	140,000 (6)
7 CT	4,5655	2	2,2827	140,000 (7)
8 PT	0,1001	1	0,1001	210,000 (8)
9 CW	179,2355	12	14,9364	40,000 (9)
10 SW	37,1111	6	6,1852	60,000 (10)
11 TW	79,9958	6	13,3326	60,000 (11)
12 S(CP)	1173,1931	54	21,7258	14,000 (12)
13 CPT	1,8159	2	0,9080	70,000 (13)
14 CPW	45,3654	12	3,7805	20,000 (14)
15 CTW	56,0906	12	4,6742	20,000 (15)
16 PTW	68,9353	6	11,4892	30,000 (16)
17 ST(CP)	190,8338	54	3,5340	7,000 (17)
18 SW(CP)	1633,0806	324	5,0404	2,000 (18)
19 CPTW	26,5530	12	2,2111	10,000 (19)
20 STW(CP)	820,5224	324	2,5328	1,000 (20)

Delta GSRs

C = Conditions

C₁ = Air TopC₂ = No Air TopC₃ = Control

P = Stock or no Stock on Tr #1

P₁ = Stock on Tr #1P₂ = No Stock on Tr #1

T = Trials

T₁ = Trial 1T₂ = Trial 2

W = Stimuli

W₁ = 1W₂ = 4W₃ = 7W₄ = 8W₅ = 9W₆ = 10

MEAN 2,13000

CELL MEANS

C = 1 2,03286 2 2,38393 3 1,97321

P = 1 2,21536 2 2,04464

T = 1 2,07310 2 2,18690

W = 1 1,62083 2 0,93125 3 2,20375 4 3,65000 5 2,57792 6 3,19667 7 0,72958

P = 1 2,14786 2 1,91786 3 2,36786 4 1,84821

T = 1 1,93000 2 2,13571 3 2,33571 4 2,08929

W = 1 2,14381 2 2,28690 3 2,08690

W = 1 1,30000 2 0,66250 3 1,15000 4 4,30625 5 1,73375 6 3,12750 7 0,50125 8 1,70000 9 3,52500 10 2,48750 11 1,45625 12 2,47500 13 1,45625 14 3,21250 15 0,51875 16 1,16875 17 3,25000 18 3,25000 19 3,25000 20 3,25000

SOURCE OF VARIATION DEGREES OF FREEDOM MEAN SQUARE EXPECTED MEAN SQUARE

Specifics Sigs
Anticipatory period

1	MEAN	20.00000	1	20.00000	(1)	10.00000	(12)
2	C	20.00000	2	20.00000	(2)	10.00000	(12)
3	P	20.00000	1	20.00000	(3)	10.00000	(12)
4	T	20.00000	1	20.00000	(4)	5.00000	(17)
5	W	20.00000	4	20.00000	(5)	2.00000	(18)
6	C	20.00000	2	20.00000	(6)	10.00000	(12)
7	T	20.00000	2	20.00000	(7)	5.00000	(17)
8	P	20.00000	1	20.00000	(8)	5.00000	(17)
9	W	20.00000	4	20.00000	(9)	2.00000	(18)
10	C	20.00000	4	20.00000	(10)	2.00000	(18)
11	T	20.00000	4	20.00000	(11)	1.00000	(20)
12	P	20.00000	3	20.00000	(12)	5.00000	(17)
13	W	20.00000	8	20.00000	(13)	2.00000	(18)
14	C	20.00000	8	20.00000	(14)	1.00000	(20)
15	T	20.00000	8	20.00000	(15)	1.00000	(20)
16	P	20.00000	4	20.00000	(16)	1.00000	(20)
17	W	20.00000	4	20.00000	(17)	1.00000	(20)
18	C	20.00000	2	20.00000	(18)	1.00000	(20)
19	T	20.00000	2	20.00000	(19)	1.00000	(20)
20	P	20.00000	2	20.00000	(20)	1.00000	(20)

MEAN 2.00000

CELL MEANS

C = 2.00000 3 1.00000

P = 2.00000 2.00000

T = 2.00000 1 1.00000

W = 2.00000 2.00000 2.00000

P = 2.00000 2.00000 2.00000

C = 2.00000 2.00000 2.00000

T = 2.00000 2.00000 2.00000

P = 2.00000 2.00000 2.00000

C = 2.00000 2.00000 2.00000

T = 2.00000 2.00000 2.00000

P = 2.00000 2.00000 2.00000

4.00000 1.73337
4.00000 1.52580
2.00000 1.07500

SOURCE

SUM OF SQUARES

DEGREES OF FREEDOM

MEAN SQUARE

EXPECTED MEAN SQUARE

SRs for 2 top groups for
F anthropology period

1	MEAN	2219.8232	1	2219.8232	400.000 (1)	10.000 (12)
2	C	22.1841	1	22.1841	200.000 (2)	10.000 (12)
3	P	0.0036	1	0.0036	200.000 (3)	10.000 (12)
4	T	1.8496	1	1.8496	200.000 (4)	5.000 (17)
5	U	538.8233	4	21.04*	80.000 (5)	2.000 (18)
6	CP	1.2432	1	1.2432	100.000 (6)	10.000 (12)
7	CT	10.4552	1	10.4652	100.000 (7)	5.000 (17)
8	PT	4.5482	1	4.5582	100.000 (8)	5.000 (17)
9	CW	47.6730	4	11.9175	40.000 (9)	2.000 (18)
10	EW	12.0457	4	3.0117	40.000 (10)	2.000 (18)
11	ST	42.9245	4	10.7311	40.000 (11)	1.000 (20)
12	S(CP)	793.7148	36	22.0476	10.000 (12)	
13	CPT	3.2041	1	3.2041	50.000 (13)	5.000 (17)
14	CPW	33.6058	4	8.4015	20.000 (14)	2.000 (18)
15	CTW	17.4326	4	4.3581	20.000 (15)	1.000 (20)
16	STW	5.9100	4	1.4799	20.000 (16)	1.000 (20)
17	ST(CP)	161.0910	36	4.4745	5.000 (17)	
18	ST(CP)	922.0720	144	6.4235	2.000 (18)	
19	CPTW	11.6087	4	2.9022	10.000 (19)	
20	STW(CP)	386.0582	144	2.6810	1.000 (20)	

MEAN 2.35575

CELL MEANS

C =	1	2	2.59125
P =	1	2	2.35275
T =	1	2	2.42375
U =	1	2	2.82187
CP =	1	2	2.06750
CT =	1	2	2.49750
PT =	1	2	2.35000
CW =	1	2	2.52750
EW =	1	2	2.32000
ST =	1	2	2.54875
ST(CP) =	1	2	2.59375
CPT =	1	2	2.77375
CPW =	1	2	2.41875
CTW =	1	2	2.69375
STW =	1	2	2.95000
STW(CP) =	1	2	2.61500

ANALYSIS OF VARIANCE FOR DEPENDENT VARIABLE 1

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	MEAN SQUARE	EXPECTED MEAN SQUARE
1 MEAN	904.7100	1	904.7100	360.000 (1)
2 C	5.5033	2	2.7517	120.000 (2)
3 P	0.8314	1	0.8314	180.000 (3)
4 T	19.6934	1	19.6934	180.000 (4)
5 T ₁	97.3829	2	48.6915	120.000 (5)
6 T ₂	17.8321	2	8.9160	60.000 (6)
7 CP	17.8600	2	8.9300	60.000 (7)
8 C ₁	5.0884	1	5.0884	90.000 (8)
9 C ₂	43.8770	4	10.9693	40.000 (9)
10 C ₃	4.3613	2	2.1806	60.000 (10)
11 T ₁	0.5175	2	0.2588	60.000 (11)
12 S(CP)	340.8677	54	6.3124	6.000 (12)
13 CPT	2.0654	2	1.0327	30.000 (13)
14 CPT ₁	9.4050	4	2.3513	20.000 (14)
15 CPT ₂	23.0208	4	5.7552	20.000 (15)
16 PT ₁	3.0775	2	1.5388	30.000 (16)
17 ST(CP)	131.3452	54	2.4323	3.000 (17)
18 SA(CP)	226.6028	108	2.0982	2.000 (18)
19 CPTW	13.6684	4	3.4171	10.000 (19)
20 STW(CP)	229.7378	108	2.1272	1.000 (20)

SKIN CONDUCTANCE
(Δ GSR)

C = Groups

C₁ = Wood Tap

C₂ = No Wood Tap

C₃ = Control

P = Shock or no Shock

P₁ = Shock on Tap #1

P₂ = no shock on Tap #1

T = Trials

T₁ = Trial #1

T₂ = Trial #2

MEAN 1.58528

CELL MEANS

C = 1 1.52042 2 1.75833 3 1.47708

P = 1 1.53722 2 1.63333

T = 1 1.81917 2 1.35139

W = 1 1.62783 2 0.03125 3 0.20375

P = 1 1.72417 2 1.31667
2 1.42083 3 2.00583
3 1.46667 1.48750

T = 1 1.44917 2 1.59167
2 1.30417 3 1.15333
3 1.75583

P = 1 1.65222 2 1.42222
2 1.95611 3 1.28056

C = 1 1.33300 2 0.56250 3 2.59875
2 1.73300 3 2.59875

5K's for 2 top groups per

F

Pre-top period

1	645.0121	240.000 (1)	6.000(12)
2	3.3963	120.000 (2)	6.000(12)
3	1.9733	120.000 (3)	6.000(12)
4	3.7973	120.000 (4)	3.000(17)
5	123.2673	80.000 (5)	2.000(18)
6	17.5771	60.000 (6)	6.000(12)
7	16.5533	60.000 (7)	3.000(17)
8	1.7595	60.000 (8)	3.000(17)
9	1.8353	40.000 (9)	2.000(18)
10	7.7604	40.000(10)	2.000(18)
11	2.4250	40.000(11)	1.000(20)
12	245.0958	6.000(12)	
13	1.2688	30.000(13)	3.000(17)
14	0.8793	20.000(14)	2.000(18)
15	19.0300	20.000(15)	1.000(20)
16	5.2667	20.000(16)	1.000(20)
17	67.7450	3.000(17)	
18	196.3778	2.000(18)	
19	11.4281	10.000(19)	1.000(20)
20	172.5462	1.000(20)	

MEAN 1.63037

CELL MEANS

C =	1	1.52042	2	1.75333
P =	1	1.57250	2	1.70625
T =	1	1.33083	2	1.34792
N =	1	1.50000	3	2.59625
P =	1	1.72417	2	1.31667
	2	1.42083		2.09583
T =	1	1.44017	2	1.50167
	2	2.21250		1.30417
P =	1	1.67833	2	1.46467
	2	1.06333		1.42917
C =	1	1.70000	2	0.62500
	2	1.70000		0.98125
P =	1	1.25000	2	0.69375
	2	1.75000		0.95000
T =	1		2	

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	MEAN SQUARE	EXPECTED MEAN SQUARE
1 MEAN	1226.2413	1	1226.2413	120,000 (1)
2 C	0.3152	2	0.1576	40,000 (2)
3 (P)	33.1801	1	33.1801	60,000 (3)
4 T	0.1763	1	0.1763	60,000 (4)
5 CP	0.8327	2	0.4163	20,000 (5)
6 CT	3.5102	2	1.7551	20,000 (6)
7 (PT)	53.4667	1	53.4667	30,000 (7)
8 S(CP)	635.5982	54	11.7703	2,000 (8)
9 CPT	3.2235	2	1.6118	10,000 (9)
10 ST(CP)	176.0158	54	3.2596	1,000 (10)

By hand
Dallin pre 10
post 10

MEAN 3.19667

CELL MEANS

C =	1	3
	3,12750	3,25000
P =	1	trend
	3,72250	
T =	1	
	3,23500	

C1 Avoid, top
C2 No Avoid, Top
C3 No Avoid, No Top

P1: Shock in Tr #1
P2: No Shock in Tr #1

C =	1	2
	3,63000	2,62500
P =	1	2
	3,65000	2,77500
	3,80750	2,61250

C =	1	2
	3,40500	2,85000
P =	1	2
	3,16250	3,26250
	3,13750	3,36250

P =	1 Shock	2 No Shock
	4,42833	3,01667
	2,04167	3,30000

C =	1	2
	4,36000	2,90000
P =	1	2
	2,45000	2,80000

C =	2	1
	4,30000	3,00000
P =	1	2
	2,02500	3,52500

C =	3	2
	4,62500	3,15000
P =	1	2
	1,65000	3,57500

CELL DEVIATIONS

ANALYSIS OF VARIANCE FOR DEPENDENT VARIABLE 1

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	MEAN SQUARE	F	EXPECTED MEAN SQUARE
1 MEAN	1643.6012	1	1643.6012	84	14,000(12)
2 <u>(C)</u>	24.1881	2	5.284*	23	14,000(12)
3 P	2,2012	1	2,2012	42	14,000(12)
4 T	0.6298	1	0.6298	42	7,000(17)
5 <u>(W)</u>	275.5071	6	46.541*	12	2,000(18)
6 <u>(CP)</u>	30.1167	2	6.57*	14	14,000(12)
7 CT	3.4452	2	1.7226	14	7,000(17)
8 PT	9.3440	1	0.3440	21	7,000(17)
9 <u>(CA)</u>	29.4786	12	2.49*	4	21,000(18)
10 PW	1.3071	6	0.2179	6	2,000(14)
11 TW	5.2452	6	1,0409	6	1,000(20)
12 S(CP)	123.6786	54	2,2903	1	7,000(17)
13 CPT	1.1452	2	0.5726	7	2,000(18)
14 CPW	10.7500	12	0.8958	2	1,000(20)
15 CTW	7.9548	12	0.6629	2	1,000(20)
16 PTW	2.3976	6	0.3996	3	1,000(20)
17 ST(CP)	82.2214	54	1,5226	1	7,000(17)
18 SW(CP)	319.6714	324	0.9866	1	2,000(18)
19 CPTW	12.7881	12	1.0657	1	1,000(20)
20 STW(CP)	259.3286	324	0.8006	1	1,000(20)

Non Specius
(1447/8, 9, 10, 2)

$$C_1 = Av. \text{Temp.}$$

$c_2 = 70414, 760$

(3) - 100, 100, 100

111

Table

1897

1871

$$U = 11.11 \dots 1.$$

1877. 0, 12-

[illegible]

ANALYSIS OF VARIANCE FOR DEPENDENT VARIABLE 1

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	MEAN SQUARE	EXPECTED MEAN SQUARE
1 MEAN	1526.4150	1	1526.4150	60.000 (1)
2 C	24.1200	2	12.0600	20.000 (2)
3 P	1.4017	1	1.4017	30.000 (3)
4 T	0.2817	1	0.2817	30.000 (4)
5 W	194.6767	4	48.7848	20.000 (5)
6 CP	19.6133	2	9.8067	10.000 (6)
7 CT	3.4533	2	1.7267	10.000 (7)
8 PT	0.0817	1	0.0817	15.000 (8)
9 CH	17.7633	8	2.2204	4.000 (9)
10 PW	1.2900	4	0.3225	6.000 (10)
11 TW	5.9100	4	1.4775	6.000 (11)
12 S(CP)	133.5500	54	2.4731	1.000 (12)
13 CPT	4.8933	2	2.4467	5.000 (13)
14 CPW	2.1700	8	0.2713	2.000 (14)
15 CTW	5.2300	8	0.6538	2.000 (15)
16 PTW	2.2433	4	0.5608	3.000 (16)
17 ST(CP)	81.1900	54	1.5035	1.000 (17)
18 SW(CP)	215.5000	216	0.9977	1.000 (18)
19 CPTW	6.5567	8	0.8196	1.000 (19)
20 STW(CP)	168.6600	216	0.7808	1.000 (20)

from Specimens
1, 2, 3, 4, 9

C₁ Av Top
C₂ W/14 Top
C₃ W/10 K13 Top

P₁ = S/100 m T₁ H₁
P₂ = S/100 m T₂ H₂

W₁ = 100 m
T₁ = 100 m
T₂ = 100 m

MEAN 1.59500

CELL MEANS

C = 1 1.38500 3 1.53500

P = 1 1.64333 2 1.54667

T = 1 1.57333 2 1.61667

W = 1 0.91667 2 1.01667 3 1.74167 4 1.84167 5 2.45833

P = 1 1.59000 2 1.18000
C = 1 1.66000 2 2.07000
3 1.39000

T = 1 1.26000 2 1.51000
C = 1 1.87000 2 1.86000
3 1.59000 4 1.48000

T = 1 1.63333 2 1.65333
P = 1 1.51333 2 1.58000

W = 1 0.82500 2 0.77500 3 1.02500
C = 1 0.97500 2 1.20000 3 1.85000
3 0.95000 4 1.07500 5 1.55000

1.47500 2.02500
2.42500 2.87500
1.62500 2.47500

ANALYSIS OF VARIANCE FOR DEPENDENT VARIABLE 1

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	MEAN SQUARE	EXPECTED MEAN SQUARE
MEAN	540.2250	1	540.2250	360.000 (1)
C	2.6000	2	1.3000	120.000 (2)
P	0.2250	1	0.2250	180.000 (3)
T	0.4054	1	0.4054	180.000 (4)
CP	48.6500	2	24.3250	120.000 (5)
CT	11.2607	2	5.6303	60.000 (6)
PT	2.1545	2	1.0772	60.000 (7)
CW	3.9500	1	0.0028	90.000 (8)
FW	0.6500	4	0.9875	40.000 (9)
TW	2.8389	2	0.3250	60.000 (10)
S(CP)	85.2500	2	1.4194	60.000 (11)
CPT	3.3555	54	1.6776	6.000 (12)
CPW	0.5633	2	0.1458	30.000 (13)
CTW	0.2611	4	0.2153	20.000 (14)
PTW	0.5055	4	0.2528	20.000 (15)
ST(CP)	52.8500	2	0.978777	30.000 (16)
SW(CP)	66.5000	54	0.505910	3.000 (17)
CPTW	0.7611	128	0.1923	2.000 (18)
STW(CP)	85.7000	4	0.821310	10.000 (19)
SW(CP)		108		1.000 (20)

$$M = A' \quad 1.22500$$

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C =	1	1,14167	2	1,54167	3	1,19167
P =	1	1,25700	2	1,20000		
T =	1	1,26111	2	1,13889		
h =	1	0,91667	2	1,01667	7	1,74167
F =	1	1,28333	2	1,00000	3	
C =	2	1,11667	3	1,56667		
	3	1,35000		1,03333		
T =	1	1,10000	2	1,14333		
P =	2	1,35000		1,33333		
	3	1,33333		1,05000		
T =	1	1,28669	2	1,21111		
P =	2	1,23333		1,16667		
h =	1	0,92000	2	0,77500	3	1,82000
C =	2	0,97500		1,20000		1,85000
	3	0,95000		1,07500		1,55000

ANALYSIS OF VARIANCE FOR DEPENDENT VARIABLE 1

SOURCE	SUM OF SQUARES	DEGREES OF FREEDOM	MEAN SQUARE	EXPECTED MEAN SQUARE
1 MEAN	210.2500	1	210.2500	900.000 (1)
2 C	13.0867	2	6.5433	300.000 (2)
3 P	4.1344	1	4.1344	450.000 (3)
4 T	43.1222	4	10.7806	180.000 (4)
5 W	9.0067	2	4.5033	300.000 (5)
6 CP	7.1356	2	3.5678	150.000 (6)
7 CT	6.8578	8	0.8572	60.000 (7)
8 PT	0.1489	4	0.0372	90.000 (8)
9 CW	0.8067	4	0.2017	100.000 (9)
10 PW	1.2689	2	0.6344	150.000 (10)
11 TW	4.0044	8	0.5006	60.000 (11)
12 S(CP)	201.5933	54	3.7332	15.000 (12)
13 CPT	1.8311	8	0.2289	30.000 (13)
14 CPW	0.9711	4	0.2428	50.000 (14)
15 CTW	2.4156	16	0.1510	20.000 (15)
16 PTW	1.4978	8	0.1872	30.000 (16)
17 ST(CP)	82.1733	216	0.3804	3.000 (17)
18 SW(CP)	45.1467	108	0.4180	5.000 (18)
19 CPTW	2.1622	16	0.1351	10.000 (19)
20 STW(CP)	59.3867	432	0.1375	1.000 (20)

MEAN 0.46333

CELL MEANS

C = 1	0.55667	2	0.31333	3	0.58000
P = 1	0.55111	2	0.41556	3	0.58000
(T = 1)	0.42222	2	0.74444	3	0.69444
(W = 1)	0.52667	2	0.35333	3	0.50000
P = 1	0.74000	2	0.37333	3	0.50000
C = 1	0.56667	2	0.75000	3	0.75000
(T = 1)	0.16667	2	0.50000	3	0.41667
(W = 1)	0.53333	2	0.93333	3	0.91667
P = 1	0.48889	2	0.83333	3	0.75556
C = 1	0.32556	2	0.65556	3	0.63333
(T = 1)	0.62000	2	0.44000	3	0.61000
(W = 1)	0.45000	2	0.20000	3	0.29000
C = 1	0.72000	2	0.42000	3	0.60000

Anxiety Words

C₁ = Avoid top
C₂ = No Avoid top
C₃ = No Avoid top

P₁ = Shock on Ta #1
P₂ = No Shock on Ta #1

T₁ = Pre
T₂ = Post
T₃ = Pre #1
T₄ = Ta #5
T₅ = Fear #2

W₁ = fitting
W₂ = given
W₃ = butterflies

Small Zygocypis

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[illegible]

FEAR 0.48331

CELL MEANS

C =	1	2	3
	0.55666	0.31330	0.57998

$p = \begin{matrix} 1 & 2 \\ 0.55110 & 0.41553 \end{matrix}$

$$r = \begin{matrix} & \bar{1} & 2 & 3 \\ \begin{matrix} 0.42223 \\ 0.7445 \\ 0.69437 \end{matrix} \end{matrix}$$

$\rho_1 =$	i	2
1	0.74002	0.37330
2	0.36666	0.25996

3	0.54664	0.61332
$\gamma =$	1	2
		3

1	0.56670	0.75000	0.74995
2	0.16665	0.55000	0.41655
3	0.53335	0.93335	0.91660

$r =$	1	2	3
	0.45890	0.83333	9.75547
	0.35557	0.65557	0.63327

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1	0.76670	0.26560	0.96670
2	0.36670	0.63340	0.53320

1 =	1	2	3
1	0.20000	0.56670	0.43320
2	0.43330	0.43330	0.10000

[illegible]

1	0.50000	0.96670	0.86650
2	0.56670	0.90000	0.96670

CELL DEVIATIONS

$$X(C, \cdot) = X(\cdot, \cdot)$$

C =	1	2	3
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SOURCES OF STRESSORS DETERMINED BY FREEDOM									
1	MEAN	77.2935	1	77.2935	1500.000	(1)	25.000(12)		
2	C	4.2372	2	2.1186	500.000	(2)	25.000(12)		
3	P	0.2912	1	0.2912	750.000	(3)	25.000(12)		
4	T	24.0409	17.17	6.0102	300.000	(4)	5.000(17)		
5	H	10.1607	8.79	2.5452	300.000	(5)	5.000(18)		
6	CP	3.3153	*	1.6579	250.000	(6)	25.000(12)		
7	CT	3.3604	8	0.4201	100.000	(7)	5.000(17)		
8	PT	0.1522	4	0.0390	150.000	(8)	5.000(17)		
9	CW	4.9483	8	0.6060	100.000	(9)	5.000(18)		
10	PH	3.3142	* 4	0.8285	150.000	(10)	5.000(18)		
11	TH	4.5304	* * * 16	0.2894	60.000	(11)	1.000(20)		
12	S(CP)	137.2347	54	2.541412	25.000	(12)			
13	CPT	2.0718	8	0.2590	50.000	(13)	5.000(17)		
14	CPW	2.3078	8	0.3510	50.000	(14)	5.000(18)		
15	CTW	2.8890	32	0.0903	20.000	(15)	1.000(20)		
16	PTW	1.5926	16	0.1058	30.000	(16)	1.000(20)		
17	ST(CP)	75.7723	216	0.350817	5.000	(17)			
18	SW(CP)	63.0587	216	0.291918	5.000	(18)			
19	CPTW	3.4090	32	0.1065	10.000	(19)	1.000(20)		
20	STW(CP)	76.6493	864	0.088720	1.000	(20)			
MEAN	0.22700								
CELL MEANS									
C =	1	0.17280	2	0.20900	3	0.29920			
P =	1	0.21307	2	0.24093					
T =	1 per	0.19667	2 fast	0.37667	3 Tel	0.35000	4 TrS	0.18433	5 final
H =	1 occurred	0.33667	2 M. instead	0.25333	3 purely	0.16167	4 present	0.27667	5 terrified
P =	1	0.20520	2	0.14040					
C =	1	0.21320	2	0.20480					
	2	0.22080	3	0.37760					
T =	1	0.12000	2	0.37000	3	0.25000	4	0.12400	5
C =	1	0.14000	2	0.30000	3	0.32000	4	0.24500	5
	2	0.33000	3	0.46000	4	0.48000	5	0.18400	0.04200
T =	1	0.18667	2	0.36667	3	0.34667	4	0.15133	5
P =	1	0.20567	2	0.38667	3	0.35333	4	0.21733	5
H =	1	0.29000	2	0.13000	3	0.12400	4	0.23000	5
C =	1	0.29000	2	0.39000	3	0.07500	4	0.24000	5
	2	0.43000	3	0.24000	4	0.28600	5	0.36000	0.18000
T =	1	0.32667	2	0.15333	3	0.20533	4	0.27333	5
P =	1	0.32667	2	0.15333	3	0.20533	4	0.27333	5

FLYTOON

3 groups

5 km west

F		16.7088		300.000	(1)	5,000	(8)
		0.4468		100.000	(2)	5,000	(8)
		0.0533		150.000	(3)	5,000	(8)
		1.1335		60.000	(4)	1,000	(10)
		0.3761		50.000	(5)	5,000	(8)
		0.0830		20.000	(6)	1,000	(10)
		0.0060		30.000	(7)	1,000	(10)
		0.5726		5.000	(8)		
		0.0533		10.000	(9)	1,000	(10)
		0.0762		1.000	(10)		
14.88**							
16.7038		1	16.7038	16.7038			
0.8936		2	0.8936	0.8936			
0.0533		1	0.0533	0.0533			
4.5339		4	4.5339	4.5339			
0.7523		2	0.7523	0.7523			
0.6637		8	0.6637	0.6637			
0.0240		4	0.0240	0.0240			
30.9200		54	30.9200	30.9200			
0.4264		8	0.4264	0.4264			
16.4640		216	16.4640	16.4640			
ST(CP)							

MEAN 0.23600

CELL MEANS

C = 1 0.18000 2 0.21800 3 0.31000

P = 1 0.22267 2 0.24933

T = 1 0.19667 2 0.37667 3 0.35000

C = 1 0.21600 2 0.14400 3 0.22800
2 0.22400
3 0.39200

T = 1 0.12000 2 0.37000 3 0.25000
2 0.14000
3 0.33000

P = 1 0.18667 2 0.36667 3 0.34667
2 0.20667

C = 1 0.10000 2 0.46000 3 0.34000
2 0.14000

T = 1 0.16000 2 0.30000 3 0.34000
2 0.12000

C = 1 0.30000 2 0.34000 3 0.36000
2 0.36000

CELL DEVIATIONS

X(C...) - X(....)

C = 1 2 3

FREEDOM 300,000 X 5 1/2 inch Adapters

1	77.6110	1	77.6118	600,000 (1)	10,000 (12)
2	3,2389	2	1,6194	200,000 (2)	10,000 (12)
3	0,4448	1	0,4448	300,000 (3)	10,000 (12)
4	9,1746	1	33,9519	300,000 (4)	5,000 (17)
5	17,4844	4	2,4064	120,000 (5)	2,000 (18)
6	2,8024	2	1,4012	100,000 (6)	10,000 (12)
7	2,0176	2	3,7311	100,000 (7)	5,000 (17)
8	0,9871	1	2,6511	150,000 (8)	5,000 (17)
9	2,1200	8	0,2650	40,000 (9)	2,000 (18)
10	0,0323	4	0,0081	60,000 (10)	2,000 (18)
11	1,4227	4	7,1711	60,000 (11)	1,000 (20)
12	83,5324	54	1,5469	12 10,000 (12)	
13	0,3291	2	0,1646	50,000 (13)	5,000 (17)
14	0,5512	8	0,0689	20,000 (14)	2,000 (18)
15	0,8301	8	0,1038	20,000 (15)	1,000 (20)
16	0,0413	4	0,0103	30,000 (16)	1,000 (20)
17	14,5905	54	0,2702	5,000 (17)	
18	33,1595	216	0,1535	2,000 (18)	
19	0,4862	8	0,0608	10,000 (19)	
20	10,6994	216	0,0495	20 1,000 (20)

should continue
from C1, P1
C2, P2
C3, P3

MEAN 0.35966

CELL MEANS

C =	1	2	3
	0.36833	0.26555	0.44499
P =	1	2	
	0.38688	0.33243	

A =	1	2
	0.48331	0.23600
T =	1	2
	0.30945	0.56056

T ₁	3	0.52218
T ₂	4	0.31999
T ₃	5	0.08610

C1 = Avoidance, Topping
C2 = No Avoidance, Topping
C3 = No Avoidance, No Topping

P1 = Shock in T₁
P2 = No Shock in T₁

A =	1	2
	0.55666	0.18000
C =	1	2
	0.31330	0.21800
	0.57998	0.31000

A =	1	2
	0.55110	0.22267
P =	1	2
	0.41553	0.24933

A1 = Avoidance, Topping
A2 = No Avoidance, Topping
A3 = No Avoidance, No Topping

C =	1	2	3
	0.34335	0.56000	0.49998
	0.15332	0.42500	0.36827
	0.43167	0.69667	0.69830
T =	1	2	3
	0.33778	0.60000	0.55107
	0.20112	0.52112	0.49330

A2 = Four Nicks
second, third, fourth, fifth
pruned, thinned (5)