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A Comparison of Minimal-Therapist-Contact Programs in the Treatment of Chronic Headaches

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A COMPARISON OF MINIMAL-THERAPIST-CONTACT PROGRAMS IN THE TREATMENT OF CHRONIC HEADACHES

by

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A COMPARISON OF MINIMAL-THERAPIST-CONTACT PROGRAMS IN THE TREATMENT OF CHRONIC HEADACHES

John Kesselring, Ph.D.

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The purpose of the study was to compare the relative efficacy and cost-efficiency of two reduced-therapist-contact formats for delivery of a behavioral package to treat chronic headaches. The 8-week treatment was delivered in a group-administered format to one treatment group and in a self-administered format to a second. A waiting-list control group was also included. Treatment components included education about headaches and their precipitants, relaxation training, and cognitive-behavioral stress management techniques. The participants in the study suffered from migraine, mixed, or tension headaches. Eleven subjects were assigned to each of the 3 treatment conditions. At posttreatment subjects in the group-administered (GA) and self-administered (SA) treatments showed 56.3% and 54.5% reductions in headache activity, respectively. Subjects in the waiting-list control (WLC) showed a 7.2% reduction. Statistically, the treatment groups differed significantly from the WLC at posttreatment, but not from each other. At a 6 month follow-up the GA group maintained a 52.8% reduction,

while the SA group maintained only a 32.6% decrease. These differences were not statistically significant within either group, nor did the 2 groups differ significantly from each other at follow-up. Both treatments were found to be highly cost-effective and did not differ significantly from each other in this respect. However, the attrition rate was 45% for the SA condition compared to 18% for the GA condition. While subjects can benefit from both treatment formats, logistical aspects of treatment delivery and possibly reduced attrition rates favor the group-administered treatment format within this study. Overall, the study provides further evidence that minimal-contact treatments hold considerable promise as effective and cost-efficient methods in the treatment of chronic headaches.

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John Kesselring

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INTRODUCTION

Over the past 15 years a variety of behavioral approaches including biofeedback, relaxation, and forms of stress management training have been found effective in the treatment of chronic headaches (Blanchard & Andrasik, 1982; Blanchard, Andrasik, Evans et al., 1985; Budzynski, Stoyva, Adler, & Mullaney, 1973; Holroyd & Andrasik, 1978; Sargent, Walters, & Green, 1973). The general acceptance of behavioral headache treatments such as biofeedback is evidenced by recognition from the American Medical Association (1983) and endorsement by the American Association for the Study of Headache (American Association for the Study of Headache, Board of Directors, 1978). In recent years there has been an increasing interest in the development of treatment approaches that are more widely accessible and cost effective than those requiring extensive therapist-client contact in a clinical setting (Blanchard & Andrasik, 1982; Schneider, 1987). This interest is consistent with a general trend in behavior therapy toward the development of self-administered or minimal therapist-contact treatment programs (Glasgow & Rosen, 1978; 1984).

Glasgow and Rosen (1984) described four levels of therapist contact that are possible in a treatment

program: (1) therapist-directed (treatments relying solely on therapist contact), (2) therapist-administered (self-help materials are employed and supplemented with regular therapist contact), (3) minimal-contact (self-help materials are the primary intervention with infrequent therapist contacts), and (4) self-administered (self-help materials constitute the sole basis of treatment). Historically, publications in the behavioral headache management literature have almost exclusively employed therapist-directed or therapist-administered treatments. However, in recent years a small body of research employing reduced-contact treatments for headache has emerged.

In an early study of reduced contact treatments for headaches, Kohlenberg and Cahn (1981) compared the effectiveness of a self-administered treatment program for migraine headaches with a control group. Subjects in the treatment condition received a self-help manual that included techniques for relaxation, thermal biofeedback, and cognitive stress management. Subjects in the control group received an informational book about headache. Contact with the subjects was made only by mail or telephone. Subjects in the treatment group showed substantial reductions in headaches while those in the control group did not. A major problem with this study was the excessive attrition rate; of the 117 subjects who began

the study, only 51 completed it. While this study suggests that self-administered headache treatment can be effective with at least some individuals, it did not compare levels or types of therapist contact as a treatment variable.

Using subjects with tension headaches, Steger and Harper (1980) compared a comprehensive behavioral treatment program that incorporated relaxation training, biofeedback, and stress management to a largely self-administered relaxation training program that included only minimal therapist contact. The comprehensive treatment program was more effective in reducing headache activity. However, because the comprehensive treatment group received more interventions as well as more therapist contact, the independent effects of these variables cannot be determined. Williamson et al. (1984) compared the effectiveness of a minimal-contact, home-based relaxation training program to a traditional therapist-assisted relaxation training program. A waiting-list control group was also employed. In both treatment conditions therapist contact with the subjects occurred in small group meetings. The subjects in the therapist-assisted treatment condition received systematic relaxation instruction by the therapist during group meetings, while those in the home-based treatment condition were restricted to discussions of headache related topics.

Although both treatment groups showed modest reductions in headache activity, only the therapist-assisted relaxation group demonstrated statistically significant headache reductions. Again, a clear comparison of treatment delivery methods is not possible in this study because of the nonequivalence of the treatment conditions. To properly assess the relative impact of variations on treatment delivery, such as the level of therapist contact, the content and scope of the interventions used should be held constant across treatment conditions.

A series of four studies (Blanchard, Andrasik, Appelbaum et al., 1985; Jurish et al., 1983; Teders et al., 1984) allowed for a more clear-cut assessment of the role of therapist contact in treatment outcome by maintaining greater consistency in the scope of treatment across experimental groups. These publications also employed a consistent formula for evaluating the relative cost-efficiency of the treatments that takes into account both treatment outcome and therapist contact time. Jurish et al. (1983) compared a clinic-based, therapist-administered program to a home-based, minimal-contact program in the treatment of vascular headaches. Both treatment groups received training in relaxation and thermal biofeedback. Each of the treatment programs resulted in significant headache reductions with the subjects in the minimal-contact group actually showing some-

what greater, although not statistically different, improvement. Since the minimal-contact treatment group required far less therapist time (2.59 versus 11.39 average hours per subject) it was found to be clearly more cost-effective. Teders et al. (1984) compared two relaxation training programs, one clinic-based and the other home-based, in the treatment of tension headache. Significant and comparable reductions in headache activity were seen in both treatment groups. Therapist contact time averaged 5.81 and 2.37 hours for the therapist-administered and minimal-contact groups, respectively, making the minimal-contact program more cost-effective. Blanchard, Andrasik, Appelbaum et al. (1985) conducted two studies that essentially replicated the two publications discussed above, but employed larger sample sizes. Fifty-three tension headache patients participated in one study, while 87 patients with vascular headaches participated in the second. In both studies the home-based programs were equally effective relative to the clinic-based programs and significantly more cost-effective, although data relating to the cost-effectiveness ratios were not presented.

More recently, Attanasio, Andrasik, and Blanchard (1987) compared an 8-week office-based cognitive therapy and relaxation treatment to a comparable home-based treatment and a home-based relaxation training-only

treatment. Twenty-five patients diagnosed with muscle-contraction headaches participated with four dropping out prior to completion of the study. The patients in each of the three groups demonstrated headache reductions following treatment. Although statistical differences among the groups were not found, the headache improvement trends favored the groups that included cognitive therapy. A significantly greater amount of therapist contact time was required for the office-based treatment in comparison with the home-based cognitive plus relaxation and relaxation only groups (9.08 mean contact hours versus 4.45 and 3.31, respectively). This study provides further evidence of the utility of reduced-contact treatment delivery approaches.

The present study sought to evaluate the relative efficacy and cost-efficiency of a behavioral headache management package under two methods of low contact treatment delivery: group-administered and self-administered. A waiting-list control group was also included. Efforts were made to keep the content of the treatments as similar as possible so that the impact of the two treatment delivery methods could be compared. The group-administered treatment format was used because it appeared to be a very time efficient approach that had been used with encouraging results (Figueroa, 1982; Holroyd & Andrasik, 1978; Williamson et al., 1984). Subjects in

the group-administered treatment met every 2 weeks and were provided with new program materials at each meeting. In the self-administered treatment format the treatment materials were made available at 2-week intervals and the subjects provided therapist contact as necessary. In addition to enhancing the similarity of the two treatment formats it was hoped that the structure, and the availability of therapist contact would decrease attrition rates (Blanchard, Andrasik, Appelbaum et al., 1985; Williamson et al., 1984; cf. Kohlenberg & Cahn, 1981). Because therapist contact was available to the subjects in the self-administered program on an individual basis, the amount of therapist contact was not fixed and could vary substantially amoung subjects. The viability of this approach was examined in the current study.

METHOD

Experimental Design

The study employed a one-factor completely randomized design (Kirk, 1968). Three experimental groups were included: two treatment groups and a waiting-list control group. All subjects self-recorded headache activity and medication use during 4-week pretreatment and posttreatment baseline phases. Following the pretreatment phase subjects in the two active treatment groups participated in an 8-week headache management program delivered on either a group-administered or self-administered basis. Subjects in the waiting-list control group did not participate in this treatment phase. At the conclusion of the 8-week treatment phase all subjects resumed headache self-recording for the posttreatment phase. Subjects in the two active treatment groups participated in a 4-week follow-up that was conducted 6 months after the completion of the posttreatment phase.

Subjects

Approximately 100 individuals who responded to announcements in a local newspaper participated in an initial screening interview by telephone. Forty subjects

started pretreatment baseline self-monitoring and 33 were ultimately selected to participate in the research after meeting the following criteria: (1) an independent diagnosis of migraine, mixed, or muscle-contraction headache, (2) written permission to participate obtained from their physician, (3) the absence of significant psychological or physical disorders other than headaches, (4) between 18 and 65 years of age, (5) a headache frequency of greater than two per month, (6) completion of pretreatment baseline data collection, and (7) a willingness and ability to meet all requirements of the study with respect to data collection and participation in any of the treatment conditions. Prior to beginning the study all subjects signed an informed consent agreement. (A copy of this agreement is provided in Appendix A.)

Following the third week of the pretreatment baseline the 33 subjects were randomly assigned to one of the three treatment conditions: group-administered treatment (GAT), self-administered treatment (SAT), or waiting-list control (WLC). Subject characteristics are summarized in Table 1 for those completing the study, as well as those who dropped out from the three treatment conditions.

Nine subjects dropped-out of the study prior to completing the posttreatment baseline phase. Dropouts

did not differ significantly from subjects completing the study on pretreatment headache levels, although dropouts

Table 1

Subject Demographics

Variable	Status	Treatment Condition GAT	SAT	WLC	DROP-OUT
Number of subjects	Assigned	11	11	11	(n.a.)
	Post treat.	9	6	9	9
Diagnosis	Migraine	3	3	3	3
	Mixed	3	2	3	3
	Tension	3	1	3	3
Sex	M/F	1/8	2/4	2/7	2/7
Age	$\bar{x}$	45.4	45.7	43.1	34.9
	Range	32-63	35-55	29-54	18-45
Marital status	Married	6	6	8	6
	Other(S,D,W)	3	0	1	3
Fam. income (yearly)	>$35,000	5	1	6	5
	<=$35,000	4	5	3	4
Education	College deg.	2	2	2	2
	HS degree	5	4	7	7
Yrs. with HA problem	>10 years	9	5	7	5
	2-10 years	0	1	2	4
Pretreat. HA index	$\bar{x}$	2.54	3.17	2.93	3.61
	S.D.	(.51)	(.91)	(1.45)	(2.15)

were significantly younger, $t(31) = 2.91$, $p < .01$. The subject attrition rate was higher in the SAT condition with only 6 (54%) completing the study compared to 9

(82%) in the GAT and WLC conditions. This difference was not found to be statistically significant by the chi-square test (X^2 (2) = .75, p = 68).

Headache diagnosis was made in accordance with the criteria established by the Ad Hoc Committee on the Classification of Headache (1962) for migraine, muscle-contraction, and mixed headache. The diagnostic process was operationalized by using the diagnostic inclusion criteria of the SUNYA Headache Project (Blanchard & Andrasik, 1985). Information obtained from interviews and pretreatment self-recordings of headache activity was used to arrive at the final diagnosis for each subject.

Procedures

Headache Diary

A self-report "headache diary" similar to that advocated by Blanchard and Andrasik (1985) was employed. The validity of this self-report method is supported by research demonstrating that ratings of headache improvement made by significant others (e.g., spouses) correlate with improvement measures derived from headache diary (Blanchard, Andrasik, Neff, Jurish, & O'Keefe, 1981).

All subjects recorded headaches and medications consumed during 4-week pretreatment and posttreatment phases. In addition, subjects in the two active treatment conditions recorded headaches during a 4-week

follow-up period six months after the completion of the study.

The subjects were provided with data collection forms on which they recorded headache activity 4 times per day, at times roughly corresponding to breakfast, lunch, dinner, and bedtime. Subjects rated headache severity at these times using a 6-point scale where 0 represented "no headache" and 5 represented an "intense, incapacitating headache" (after Budzynski et al., 1973). The type and amount of any medications consumed was also recorded on a daily basis on the diary forms during the pretreatment and posttreatment phases.

Several measures were derived from these headache records:

Headache Index

This represents the average daily headache activity for each 4-week phase and is calculated by summing the intensity scores and dividing by 28. The value obtained can theoretically range from 0 to 20 and represents the average daily headache activity recorded. This index is the most sensitive measure to changes in headache activity because it is affected by both the frequency at which headache is recorded and the intensity scores associated with the recorded headaches (Blanchard and Andrasik, 1985). The headache index is the primary outcome measure

employed in the study.

Percent of Ratings with Headache Present

This measure is sensitive to amount of time headache is present and does not take into account headache intensity. It is calculated by dividing the number of ratings where headache is recorded (i.e., an intensity of 1 or greater) by the total number of ratings made within each 4-week recording phase.

Intensity Index

The intensity index represents the average intensity score for those ratings where a headache was recorded as present. It can reflect changes in headache intensity independent of the number ratings where headache is present. The intensity index is computed by summing the intensity scores and dividing by the number of ratings where headache was present within each phase.

Medication Index

Each medication is assigned a relative potency value of 1-7 based on a scale developed by Coyne, Sargent, Segerson, and Obourn (1976) and extended by Blanchard and Andrasik (1985). The index is computed by multiplying the potency value of each medication by the number of doses taken and dividing the product by 28. This repre-

sents daily medication intake for the phase, taking into account not only the number of doses of medication, but also the relative potency of the medications taken. This index was restricted to medications taken on an "as needed" basis for symptom relief such as analgesics, muscle relaxants, and sinus preparations.

Program Content

All aspects of the program were administered by the current author. The headache management program was divided into 4 units, each designed to be completed in 2 weeks. Each unit included a taped relaxation exercise for home use, a written manual, and a lecture covering the topics in the manual. (The manuals and transcripts of the relaxation tapes for each unit are contained in appendices B and C, respectively.) The general content of each unit is described below.

Unit One

The manual and lecture for this unit focussed on basic headache mechanisms, general medical and behavioral treatment approaches to headache, and the introduction of relaxation training. The relaxation tape involved an abbreviated progressive muscle relaxation procedure (Bernstein & Borkovec, 1973) incorporating tense-release cycles for specific muscle groups.

Unit Two

The manual and lecture for Unit 2 covered more complex headache mechanisms, the severity or psychobiological model of headaches (Bakal, 1982), headache triggers relating to lifestyle and rebound factors, and an introduction to the second relaxation exercise. The relaxation tape for this unit involved passive relaxation procedures using "autogenic phrases" (Schultz & Luthe, 1969) stressing sensations such as heaviness.

Unit Three

The role of stress in headaches, and cognitive stress management procedures (Beck, 1984; Burns, 1980) were covered in the manual and lecture for this unit. The relaxation tape included relaxation of the face and neck using the tense-release approach, and imagery techniques for general relaxation and warmth in the hands.

Unit Four

The manual and lecture for Unit 4 continued with information and techniques of stress management, the role of depression and operant factors in headache, lists of specific headache triggers including foods, and information about dental-related causes of headache. The relaxation tape for this unit focussed on the use of diaphragmatic breathing as a relaxation technique to foster hand

warming skills (Bacon & Poppen, 1985).

Group-Administered Treatment

Subjects in this condition participated in an 8-week training program incorporating the information and techniques described above. They attended four, biweekly group meetings which lasted approximately 75 minutes. Each unit contained three basic components: written material which constituted one section of a headache manual, a lecture reviewing and expanding on the information in the manual, and a taped relaxation exercise for home use.

At the beginning of each biweekly meeting the manual and relaxation tape for the new unit were passed out to the participants. The remainder of the meeting was primarily devoted to lecture regarding the material for the unit. Comments and questions by the subjects were allowed, but restricted to a small portion of the meeting time.

The subjects were instructed to practice on a daily basis with the relaxation tapes during the course of treatment. They also recorded whether or not they had practiced relaxation during each day of treatment. This information was turned in to the experimenter at the end of each unit.

Self-Administered Treatment

Subjects in this condition received the same treatments as those in the group-administered condition, except they did not attend the biweekly group meetings. Instead, they were asked to come in every 2 weeks during treatment to pick-up a packet of materials for each new unit. The packet contained the manual and relaxation tape for the current unit, and a taped lecture that paralleled the lecture provided to subjects in the group-administered condition. (See Appendix D for transcripts of these taped lectures.) Since subjects in the GAT condition were able to ask questions about the material and the program during the biweekly meetings, efforts were made to provide subjects in the SAT condition this same opportunity. These subjects were encouraged to contact the experimenter if they had any questions or concerns about the material for a given unit or any other aspects of the program.

Subjects who did not pick-up the materials for a given unit within 5 days of time it became available were phoned and prompted to do so. Each subject was also allowed one additional prompt during the course of the program that was made after another 5 days had passed if the materials had not been picked-up. Subjects who did not pick-up the materials after this second prompt, or after the first prompt in subsequent units, were considered

dropouts from the study. Only one subject completed all the units without prompting. As a result subjects in the SAT condition took up to 12 weeks to complete the scheduled 8-week program.

Waiting-List Control

These subjects were told they had been placed on a waiting-list for treatment and they would be contacted near the end of the eight week waiting period. After 6-7 weeks they were again contacted and arrangements were made for them to resume self-recording for the posttreatment phase. After completing the posttreatment phase these subjects were offered treatment, although their obligations to the research were completed.

RESULTS

Treatment Outcome

The headache and medication measures were analyzed by means of univariate analyses of covariance (ANCOVAS) using pretreatment scores as the covariate. Prior to conducting the ANCOVA test procedures the homogeneity of regression slopes assumption was tested and met for each covariate. Univariate analyses of variance (ANOVAS) were also conducted on the covariates and revealed no significant differences among the groups on any of the pretreatment scores.

Posttreatment and follow-up scores were subjected to separate ANCOVAS on each of the headache measures. The ANCOVA procedure was also employed to test posttreatment scores on the medication index. When ANCOVA F-tests revealed a significant difference among posttreatment scores pairwise comparisons were made using Fischer's Protected LSD test procedure (Huitema, 1980). Correlated t-tests were employed to test for changes in headache activity from the post to follow-up phases for the two treatment groups. The results of these statistical tests as well as associated group means or adjusted means are presented in Table 2.

Table 2

Summary Statistics for Outcome Measures

Variable / Group	Pre $\bar{X}$	Post Adj. $\bar{X}$	Follow-up Adj. $\bar{X}$	ANCOVA F(df) Post scores	Prot. LSD t(df) Post pairwise	ANCOVA F(df) F-up scores	Corr. t(df) Post x F-up
Headache index					GAT x SAT: t(20)=.22^	(GAT x SAT)	
GAT	2.54	1.34	1.48		GAT x WLC: t(20)=3.77**		GAT: t(8)=.40^
SAT	3.18	1.25	1.85 (n=5)	9.75(2,20)**	SAT x WLC: t(20)=3.64**	.58(1,19)^	SAT: t(4)=.84^
WLC	2.93	2.69	----				
Percent headache					GAT x SAT: t(20)=.35^		
GAT	32.1	20.0	22.23		GAT x WLC: t(20)=3.24**		GAT: t(8)=.81^
SAT	41.1	21.8	33.53 (n=5)	5.62(2,20)*	SAT x WLC: t(20)=2.48**	1.63(1,19)^	SAT: t(4)=.94^
WLC	39.2	35.2	----				
Intensity index							
GAT	2.14	1.85	1.75				GAT: t(8)=.60^
SAT	1.99 (n=5)	1.53 (n=5)	1.53 (n=5)	1.92(2,19)	(non-sign. F)	1.65(1,19)^	SAT: t(4)=.6 ^
WLC	1.80	1.94	----				
Medication index					GAT x SAT: t(20)=6.49**		
GAT	2.11	.55	----		GAT x WLC: t(20)=3.23**		
SAT	2.11	1.05	----	5.28(2,20)*	SAT x WLC: t(20=1.34^	(n.a.)	(n.a.)
WLC	1.19	1.47	----				

*p<.05. **p<.01. ^p>.10.

On the headache index, the most sensitive measure of headache activity, both active treatment groups showed substantial reductions in headache levels. Their adjusted posttreatment scores on this variable were significantly less than those in the control group, although not significantly different from each other. These improvements were largely maintained at the 6 month follow-up period. The scores were somewhat higher at follow-up

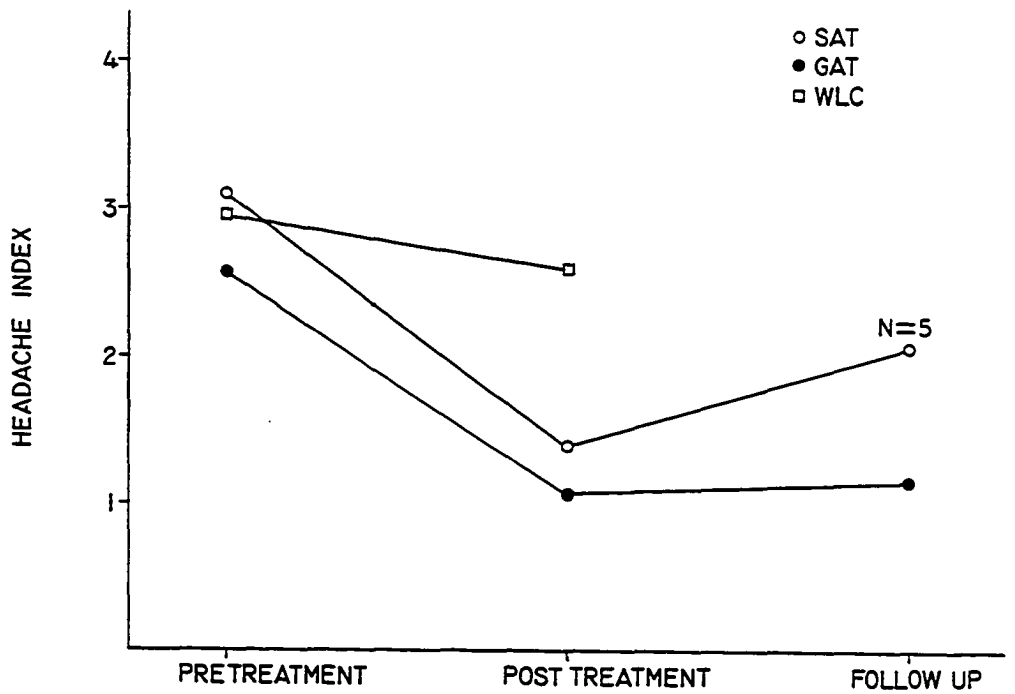

Figure 1. Mean (Unadjusted) Headache Index Scores for Treatment and Control Groups Across Phases.

relative to posttreatment, especially in the SAT group, but these differences did not achieve statistical significance, nor were the two groups significantly

different from each other at follow-up. The raw score means on the headache index for all three groups at pre-treatment and posttreatment, and for the treatment groups at follow-up are plotted in Figure 1. Only five of the six subjects in the SAT group participated in the follow-up. The subject who was not available for follow-up had recorded an absence of headaches during the posttreatment phase.

The average percent improvement in headache levels

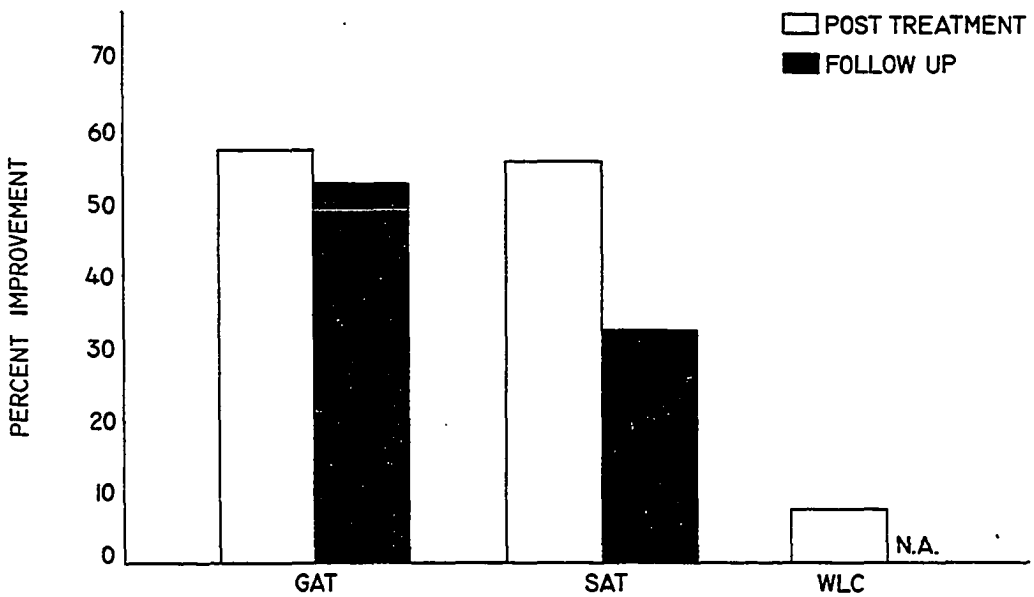

Figure 2. Percent Improvement in Headache Activity as Reflected by Reductions in the Headache Index from Pretreatment to Posttreatment and Follow-up.

(using the headache index) from pretreatment to post-treatment for each group, as well as pretreatment to

follow-up for the treatment groups, are presented in Figure 2. Subjects in the GAT condition showed a 56.3% reduction from pretreatment to posttreatment, with a very similar reduction of 54.5% demonstrated by the subjects in the SAT condition. In contrast, subjects in the control condition showed only a 7.2% improvement at the posttreatment phase. At follow-up the GAT group maintained an average improvement of 52.8%, while the five available subjects in the SAT group maintained only a 32.6% improvement level.

Based on their headache reduction levels at posttreatment subjects were classified in three categories: slight or no improvement (33% or less improvement), moderate improvement (greater than 33% and less than 67% improvement), and substantial improvement (67% improvement or greater). The number of subjects falling into each category are presented by group in Table 3. A higher proportion of the subjects who had received treatment fell into the moderately and substantially improved categories relative to the control subjects (X^2 (4) = 11.75, p = .02).

The percentage of ratings with headache present, a second measure derived from the headache diary, showed the same trends as the headache index. At posttreatment the GAT and SAT groups had reductions significantly greater than those found in the control group, but not

significantly different from one another. The treatment groups were not significantly different at follow-up, nor was the difference between posttreatment and follow-up scores significantly different within the groups. Although not statistically significant, the SAT group did

Table 3

Classification of Subjects by Posttreatment Improvement Level

		Degree of improvement		
Group		None or slight	Moderate	Substantial
GAT	n =	1	4	4
	% =	(11.1%)	(44.4%)	(44.4%)
SAT	n =	2	2	2
	% =	(33.3%)	(33.3%)	(33.3%)
WLC	n =	8	1	0
	% =	(88.9%)	(11.1%)	(0%)

Note: Degree of improvement was defined as the percentage reduction in the headache index from pretreatment to posttreatment: substantial = 67% or greater, moderate = 33 - 66%, none or slight = less than 33%.

not maintain the posttreatment level of improvement at follow-up.

The treatment groups showed some reduction in the intensity index at posttreatment that was not seen in the control group suggesting that when headaches were recorded they were somewhat less intense following treatment. However, these differences were not statistically

significant.

Both treatment groups showed reductions in medication consumption at posttreatment while the control group actually increased its use of medications. The GAT group showed statistically significantly greater reductions in medication use relative to both the SAT and WLC groups, while the SAT group did not show significantly greater reductions than the WLC group.

Compliance with Relaxation

Compliance with the instructions for practicing relaxation on a daily basis was assessed by self-report. Subjects in both the GAT and SAT conditions recorded whether or not they had practiced the relaxation each day throughout the treatment phase of the study. Subjects in the GAT condition reported practicing an average of 65% of the treatment days, while those in the SAT condition reported a similar compliance level of 68%, $t(13) = .23$, $p = .82$.

The level of relaxation compliance reported by the subjects did not correlate significantly with the degree of improvement in headache activity at posttreatment ($r = .30$, $p = .14$).

Cost-Effectiveness

A log was kept of the amount of contact time related

to treatment between the experimenter and each subject. This included individual contacts in person or by phone devoted to instructions to the subject, answering questions, and prompting subjects in the SAT condition to pick up materials for a new unit if they had failed to do so within 5 days of the scheduled starting date for that unit. For subjects in the GAT condition individual contact time for the group meetings was computed by dividing the total meeting time by the number of subjects present. This computation reflects the lower manpower costs inherent to group treatment by averaging each unit of therapist time across the number of subjects treated. Individual contacts with subjects in the GAT condition were also added to the contact time for this group. The preparation of materials such as relaxation tapes, the manual, and the taped lectures for the SAT subjects were not included in the cost-efficiency analysis.

The averaged total contact time per subject was very similar for both treatment groups with those in the GAT condition averaging 52.5 minutes compared to 48.2 minutes for the SAT condition ($t(13) = .62$, $p = .55$). A substantial portion of the contact time with subjects in the SAT condition involved prompts to pick up materials for a new unit.

To determine the relative cost-effectiveness of the two treatments a cost-effectiveness ratio (Blanchard,

Andrasik, Appelbaum, et al., 1985) was computed by dividing the percent improvement at posttreatment by the therapist contact time (in hours) for each subject. The mean cost-effectiveness ratios for the GAT and SAT groups were 64.9 and 66.7, respectively ($t(13) = .11$, $p = .91$). These values compare quite favorably to other studies involving minimal-contact therapies which have reported this ratio or data that allow it to be computed. The cost-effectiveness ratio for the minimal-contact group in the Teders et al. study (1984) with tension headache patients was 17.71. In the Jurish et al. (1983) study with vascular headache patients the actual cost-effectiveness ratio means were not presented, but can be computed from the data provided. Based on a mean therapist contact time of 2.59 hours and a mean improvement of 59.05%, the cost-effectiveness ratio for the minimal-contact group in that study was 22.8.

It is noteworthy that only data from subjects completing the study were employed in computing the cost-effectiveness ratio. If drop-outs were considered treatment failures the GAT group was actually more cost-effective than the SAT approach in the present study.

Satisfaction with Treatment

At the completion of the posttreatment phase subjects in the GAT and SAT conditions were asked to rate their

overall satisfaction with the treatment program on a scale of 1 to 5 (1 = not at all satisfied, 5 = extremely satisfied). Subjects in the GAT condition were slightly more satisfied ($\bar{x}$ = 4.2, S.D. = .67) than those in the SAT condition ($\bar{x}$ = 3.8, S.D. = .41), although this difference was not significant ($t(13) = 1.27$, $p = .23$). The satisfaction levels of both groups was close to the value associated with the descriptor "very satisfied."

The subjects in the treatment groups were also asked to rate the value of various components of the treatment program. Their responses are summarized in Table 4.

Table 4

Subject Satisfaction Ratings of Treatment Components

		Treatment Group		
Component		GAT	SAT	T-Test
Relaxation	$\bar{x}$	3.0	3.3	$t(13) = .62$
	(S.D.)	(1.00)	(1.03)	$p = .54$
Manuals	$\bar{x}$	4.2	4.0	$t(13) = .55$
	(S.D.)	(.83)	(.63)	$p = .59$
Lectures	$\bar{x}$	4.2	3.8	$t(13) = .76$
	(S.D.)	(.97)	(.98)	$p = .46$
Stress mgt.	$\bar{x}$	3.3	3.2	$t(10.8) = .41$
Techniques	(S.D.)	(1.11)	(.41)	$p = .69$

Note: The subjects rated each component on a scale of 1 - 5, where 1 = not at all useful, and 5 = extremely useful.

Subjects were also asked to provide written feedback at the end of the posttreatment phase. The most frequent responses to the question "What things in the program were most effective for you in controlling your headaches?" were relaxation and awareness or knowledge of headache triggers (both reported by 8 of the 15 subjects).

DISCUSSION

The results of the present study are consistent with previous research (Blanchard, Andrasik, Appelbaum et al., 1985; Figueroa, 1982; Jurish et al., 1983; Kohlenberg & Cahn, 1981; Teders et al., 1984) demonstrating the effectiveness of reduced-therapist-contact treatments for headaches. While a therapist-administered treatment condition was not included, the degree of improvement in this study is comparable to the effectiveness of many therapist-administered treatments reported in the literature (Blanchard & Andrasik, 1982, 1985; Holroyd & Penzien, 1986). The cost-effective-ness ratios for both treatment conditions in the present study were substantially greater than other studies involving minimal-contact programs that reported this ratio (Jurish et al., 1983) or data that allowed it to be computed (Teders et al., 1984).

The average age of subjects completing treatment in the present study was higher than that generally reported in the literature (Blanchard, Andrasik, Appelbaum et al., 1985; Figueroa, 1982; Holroyd & Penzien, 1986; Jurish et al., 1983; Teders et al., 1984). Since older patients tend to show less improvement from behavioral treatments (Blanchard & Andrasik, 1985; Holroyd & Penzien, 1986),

the degree of improvement obtained in the current study is especially encouraging.

Certainly a degree of caution should be taken in the interpretation of the current results given the limitations of the study. The results are derived from a small number of subjects and the subjects were not homogeneous with respect to diagnosis. In regard to this latter point, examination of the data did not reveal differential outcome associated with the three diagnostic categories. Nor did outcome appear related to pretreatment values on any of the headache measures employed in the study.

The scope of the present study was also limited with respect to the analysis of treatment effects. The contribution of specific program components cannot be assessed since a number of interventions were included. The subjects did report their practice with the relaxation tapes, a primary treatment component, although reported compliance levels did not correlate with improvement in headache activity.

Although comparable in both overall effectiveness and cost-effectiveness, there are several considerations that make the group-administered treatment format preferable to the self-administered treatment format as employed in the current study. Because a significant time advantage was not found for the self-administered program, its

primary potential benefit was not realized. In fact, if subjects who dropped-out are classified as treatment failures, and time spent working with them included in the cost-efficiency analysis, the group-administered program would show an advantage with respect to cost-effectiveness. Much of the contact time with subjects in the SAT group consisted of prompts for them to initiate a new unit in the program after they had failed to do so in a timely fashion. Only one of the subjects in the SAT group initiated all units in the program without being prompted at least once. If the prompts had not occurred, the attrition in the SAT condition would have been higher. For the majority of subjects in the SAT condition, the treatment became, in effect, a minimal-contact program rather than a self-administered program. Almost all of the contact with subjects in the GAT condition occurred during the scheduled biweekly meetings. In contrast to this orderly and predictable contact with the subjects, telephone or personal contacts with the subjects in the SAT condition were less predictable and less easily accomplished regardless of whether they were initiated by the therapist or the subject. This created more logistical difficulties in administering the program in the SAT condition. Breaking the program into units lasting two weeks each was not effective in enhancing compliance since the majority of subjects required fre-

quent prompts and attrition was high. Perhaps changes in the format of the self-administered program could improve factors such as efficiency, compliance, and attrition. However, the group-administered format was found to be simple to administer as well as highly cost-effective.

Given the ever rising costs of health care and moves toward cost-containment, the development of cost-effective treatment alternatives is a timely and important undertaking in psychology (Schneider, 1987). The present study furthers the development of behavioral headache treatments that are more efficient than traditional therapist-administered treatments. More specifically, it offers encouraging results for the use of a group administered treatment format that is very cost-effective. Minimal-contact treatments appear to be particularly attractive as initial interventions for persons who have not received other behavioral treatments for their headaches. More individualized and intensive treatments can then be employed selectively for those who do not respond to the minimal-contact approach. In a strategy of this type Blanchard, Andrasik, Neff et al. (1982) employed a sequential treatment approach where persons who did not respond to relaxation training were then provided biofeedback training. A substantial portion of those who did not respond to the relaxation training did improve when provided the more intensive biofeedback training.

Further development of this sequential treatment approach to include minimal-contact, and potentially self-administered treatments looks quite promising.

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APPENDIX A

Informed Consent Agreement

INFORMED CONSENT

Headache Self-Management Study

Principal Investigator:
John Kesselring, M. A.
Department of Psychology
Western Michigan University
and
Borgess Mental Health Center, Inc.

Telephone: 383-7340

The purpose of the study is to investigate the effects of a behavioral self-help program in the management of chronic benign headaches.

By electing to participate in this study I am consenting to the following: (1) to complete questionnaires and inventories before and after treatment that concern my headaches as well as personal attitudes, feelings, and behaviors, (2) to record headaches, related symptoms, and medication use for the duration of the study, (3) to obtain written permission from my physician to participate in the study, (4) to return completed data collection materials to the primary investigator on a regular basis, (5) to participate in a treatment program that requires the regular practice of procedures such as relaxation, self-management, and stress management, and (6) to participate in a 4-week follow-up which will occur six months after the completion of the study and involves only self-recording of headaches and medication use.

The design of the study has been explained to my satisfaction and my understanding is consistent with the following description: The study will begin with a 4-5 week self-monitoring phase. At the end of this phase some participants will begin treatment, while others will be put on a waiting list. At the end of this 8-week treatment or waiting-list phase all subjects will again self-monitor headaches for 4 weeks. Following this second self-monitoring phase participants who had been on the waiting list will begin treatment.

I understand that the specific treatment program I receive and the time at which I begin treatment will be determined by a random selection process.

I understand that the risks involved with the treatment are minimal. I am aware that as a result of the treatment and self-monitoring activities I may learn more about a number of aspects of my life.

It has been explained to me that the assessment and treatment procedures in the study are not intended in any

way to replace proper medical evaluation and treatment of my headache condition. I am aware that I will not receive any medical evaluations, recommendations, or treatments as part of my participation in the study. I understand that the procedures employed in the study are intended to supplement, not replace, appropriate medical treatment.

I understand that I may benefit from the treatment procedures by gaining a greater control in preventing, alleviating, or coping with my headaches. I understand that my participation in the study may be of value in advancing the scientific knowledge about treating headaches.

I understand that all identifying information concerning my participation in the study will be held confidential. I understand that my anonymity will be preserved if any of the data from this study are used for publication. However, I am aware that because I may be attending sessions in a small group format, total confidentiality cannot be assured. As a participant in this study I agree not to divulge information about any other participants with whom I do have contact.

I understand that my participation in this study is entirely voluntary. I am aware that I can withdraw from the study at any time. I understand that I can ask questions about my participation in the study at any time. I am aware that I will not be receiving any financial compensation for my participation in the study.

I have read this consent agreement and had my questions answered to my satisfaction by the principal investigator. I freely agree to participate in this research project.

_____
(print name)

_____ _____
(signature) (date)

_____
(witness)

APPENDIX B

Treatment Manuals for Participants

HEADACHE SELF-MANAGEMENT PROGRAM

* UNIT ONE *

John Kesselring, M.A.

Research Draft-
Do Not Duplicate

HEADACHE SELF-MANAGEMENT

Overview

This program is designed to help you develop a variety of skills that will be useful in gaining control over your headaches. The techniques in the program have been used successfully by many individuals who, like yourself, have suffered from migraine or muscle-contraction headaches.

The program is divided into four sections or units, each lasting approximately 2 weeks. Each unit will include information to help you better understand your headache problem, techniques for decreasing headaches to apply in your daily life, and taped relaxation exercises for home practice. The information and procedures in each unit have been arranged to help you systematically develop the skills necessary to control your headaches.

There is one essential aspect of the program that you must supply -- your active participation. To be successful you will need to practice and apply the techniques that are provided.

Introduction to Unit One

This first unit of the program provides some basic information about headaches and approaches to treating them. This material will be expanded on in later units and will help you understand both your headaches and role of various self-help techniques. You will also be introduced to relaxation training and begin practicing with the first tape in the relaxation series. Practicing with the relaxation tape is the most important component of this unit.

BASIC HEADACHE MECHANISMS

What Causes the Pain?

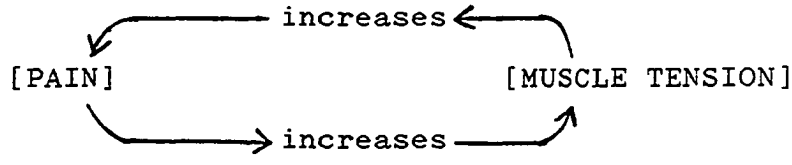
The physiological processes that underlie headaches are complex and in many ways not well understood. In this section of the manual basic explanations of the physiological mechanisms of headache are presented. The full story is much more complicated and will be discussed further in later units.

Don't worry if you do not completely understand all of the concepts and terms discussed in the manual. The aim of this program is not to make you an expert on the physiology of headache. However, the background information provided may be helpful to you in understanding why many of the techniques offered in this program are be useful in the control of headaches.

Muscle-Contraction Headache

Muscle-contraction or tension headache has traditionally been thought to arise from the prolonged contraction (tensing) of facial, scalp, and/or neck muscles. This contraction causes an increase in the pressure within the muscle. This, in turn, squeezes or compresses the blood vessels within the muscle, impairing the blood flow and thus reducing the supply of oxygen to the muscle tissue. The resulting pain is frequently described as dull and aching, and tends to generalized, rather than arising from a single specific location.

Since the tensing of muscles is a natural reaction to any pain (e.g. wincing or bracing) muscle-contraction headaches tend to be self-sustaining. A painful muscle is difficult to relax. In fact, the stage is set for an upward spiral of both pain and tension as shown in the diagram below. This is referred to as the pain-tension cycle and is a frequent complication of many chronic pain conditions such as low back pain (and chronic headaches).

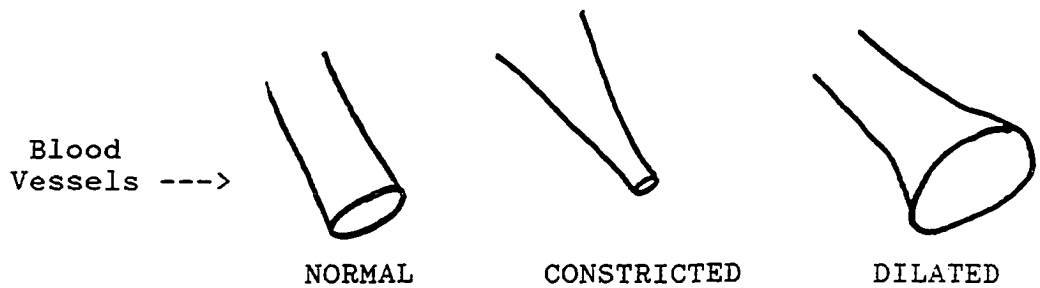


The primary mechanism of pain in tension headaches is thought to be ischemia, that is, a lack of oxygen reaching the

muscle. Other causes of pain such as inflammation and fatigue can also be present, along with other factors not well known at the present time.

Vascular Headache

An important mechanism of pain in vascular headache such as migraine is the dilation (enlargement) of certain blood vessels. Migraine attacks typically involve two phases: a vasoconstriction (narrowing of a blood vessel) and a vasodilation (enlargement of a blood vessel) phase. The headache itself is associated with the dilation phase where the wall of an affected blood vessel is stretched and swelling occurs in the surrounding area. During the constriction phase some migraine sufferers experience visual disturbances, numbness, or other abnormal sensations. This occurs prior to the headache and is known as a prodrome or aura. A migraine that is preceded by a prodrome is referred to as a "classic" migraine. Migraines that occur without the prodrome are referred to as "common" migraines.



Vascular headaches are frequently described as sharp, throbbing, and focussed on a specific site (at least at the beginning of the headache). They are often accompanied by nausea or vomiting. Severe migraine headaches involve disturbances throughout the entire body and often cause a wide range of distressing symptoms.

Mixed Headache

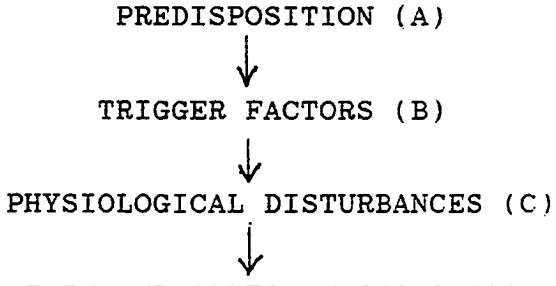
This type of headache is a combination of both vascular and muscle-contraction processes. It is not uncommon for headache sufferers to experience headaches that have both muscle-contraction and vascular features.

Mixed headache patterns often develop gradually over a period of years as an individual's headache problem worsens. When this process has occurred the victim is likely to have nagging headaches on a daily basis with periodic full-blown

migraines. Research also suggests that there may be considerable overlap between the headaches traditionally classified as vascular and those classified as muscle-contraction. This will be discussed further in the next unit.

Elements of a Headache

The following diagram depicts several important components that are present in most headache conditions.



Headache pain and accompanying symptoms (D) result from biological disturbances (C) that occur when a susceptible person (A) is exposed to trigger factors (B). The term "predisposition" simply refers to the fact that the individual is at risk to have headaches. This predisposition could be hereditary or acquired during a person's life. Trigger factors can be found in both the external environment and within the individual.

Treatment Approaches

There are three general approaches to treating headaches: palliative, abortive, and preventative. The three approaches each target different elements of the headache condition.

Palliative Treatments

A palliative treatment is one that attempts only to reduce the symptoms of a headache. Pain relievers (analgesics) such as aspirin or codeine are common palliative headache treatments. Other medications used to control symptoms such as upset stomach fall into this category. Treatments such as bed rest or the use of a heating pad are also palliative.

Abortive Treatments

Abortive treatments are those that interfere with the physiological disturbances that underlie the headache. Ergotamine is a common abortive treatment for vascular headaches. It acts by constricting the painfully dilated blood vessels in the scalp. Muscle-relaxant medications are sometimes used as an abortive approach to muscle-contraction headaches.

Preventative Treatments

These approaches focus on decreasing an individual's predisposition to headaches or on eliminating the factors that trigger the headaches. Preventative medications are intended to decrease a person's predisposition to headaches. Inderal, for example, is a common medication used to prevent vascular headaches. It appears to stabilize blood vessels, preventing the excessive tendency for vasodilation. Antidepressants, which are also used to prevent headaches, appear to act by correcting chemical imbalances that predispose the individual to headaches.

Self-Management Approaches

Headache self-management approaches can fall into any of the three treatment categories, although the majority of them are preventative. The use of self-management techniques for the identification and subsequent removal or alteration of various headaches triggers is a preventative approach. Relaxation training is another important self-management treatment that is largely preventative when used effectively, although it can also have important abortive and palliative uses for many headache sufferers.

LEARNING TO RELAX

Introduction

An important aspect of headache self-management is the use of relaxation skills. This section of the manual is intended to introduce you to relaxation, and to prepare you to begin practicing and learning these important skills. Some of the reasons why relaxation is useful in controlling headaches will also be discussed.

What is Relaxation?

We frequently use the word "relaxation" to refer to pleasant recreational activities such as watching television, visiting with friends, playing a round of golf, or reading a good book. As part of your headache self-management program, however, relaxation refers to a specific set of skills that are used to reduce bodily tension and physiological arousal.

Muscular Relaxation

The muscles in our bodies operate through the mechanism of contraction. When a muscle is used it becomes tense by the shortening (contraction) of the fibers within it. If you clench your fist tightly, for example, there is a contraction of the muscle fibers in your fingers, hand, and forearm. Now if you let go of your fist and allow your arm to hang limply at your side, the amount of contraction in these muscles is reduced substantially.

There is always some amount of contraction present in the muscles of your body, otherwise you would be slumped over, unable to even keep an upright posture. Unfortunately many people continually carry excessive amounts of muscle tension in their body. Muscles in the regions of the back, shoulders, scalp, and face are frequently the most tense. This constant tension can result in pain and stiffness as in the case of muscle-contraction headaches. One of the goals relaxation training is to teach you to recognize muscle tension, even at low levels, and to be able to release this tension.

Relaxation of the Autonomic Nervous System

Another major focus of relaxation training is to help you learn to recognize signs of autonomic nervous system arousal within you body and to develop the ability to reduce this arousal. The autonomic nervous system (ANS) is a division of the nervous system that regulates many of the essential processes within the body. These processes include heart rate, blood flow, digestion, hormonal secretions, and many others. The ANS constantly adjusts these physiological systems in response to demands placed on them. These adjustments may be in response to

physical demands as when heart rate and breathing increase during physical exercise. The ANS also controls the physiological arousal that occurs when we experience emotional or stressful reactions.

Although many of the processes controlled by the ANS have traditionally been thought of as automatic or involuntary, with practice you can acquire a significant degree of control over them. By reducing both muscle tension and autonomic nervous system activity an overall state of bodily relaxation is achieved.

The Nature of Relaxation Skills

The ability to relax involves two primary types of skills: (1) the ability to perceive or have an awareness of the sensations that accompany certain physiological states or changes within your body, and (2) the ability to voluntarily alter or control the physiological processes involved. In essence, learning to relax involves an increased awareness and control of tension and arousal in our bodies.

Awareness

Bodily processes within us are constantly changing and reacting to demands placed upon them. These changes occur even in the depths of sleep. However, except in the case of extreme bodily reactions such as those associated with exercise or strong emotions most of these changes go unnoticed. An important part of learning to relax is developing an increased awareness of the sensations that accompany these changes. Of primary importance is the development of a sensitivity to the differences between sensations that accompany tension or high states of arousal, and those associated with states of relaxation or low arousal. As you become more proficient at relaxation you will be able to notice very small changes or differences within your body. People who learn relaxation also tend to become more aware of patterns of bodily tension, such as tense facial muscles or a slight cooling of the hands (caused by constriction of blood vessels) when under stress. This increased awareness is important to the development and refinement of control over muscle tension and physiological (ANS) arousal.

Control

The second important group of relaxation skills involves the ability to voluntarily control and reduce muscular tension and arousal of the autonomic nervous system. The ability to relax bodily systems is not dangerous and can provide you with many positive health benefits.

Why is Relaxation Helpful in Reducing Headaches?

There are a variety of reasons why relaxation training can be of benefit to the individual trying to control his or her headaches. For many headache sufferers the rationale for learning relaxation is obvious -- tension clearly brings on their headaches! However, even those individuals who do not see stress or tension as a contributing factor in their headaches can potentially derive tremendous benefit from relaxation training. A number of the reasons that relaxation training can be a very powerful self-help technique in the control of headaches are described below.

1) Relaxation is a stress reduction technique and stress is the single most common trigger of headaches. The effects of relaxation are physiologically the opposite of those associated with stress and emotional arousal.

2) Relaxation directly reduces pain resulting from the prolonged contraction of muscles. Recall that the pain-tension cycle frequently contributes to chronic headache (as well as other muscular pain). Relaxation of the muscles breaks up this vicious circle of pain and tension (although relief may not be immediate).

3) Relaxation can also interfere with the abnormal physiological processes that cause vascular or migraine headaches. Research suggests that the autonomic nervous system in many migraine sufferers may be overreactive, especially with respect to the constriction and dilation of blood vessels. Persons with migraine headaches have also been found to show prolonged periods of ANS arousal which may contribute to this vascular overreactivity. Relaxation acts to reduce ANS arousal and thus may act to stabilize the vascular system.

4) As you learn relaxation skills your awareness of bodily sensations and associated physiological changes improves. This can be important in several ways:

> a) As you become better at relaxation you become more aware of early signs of muscle tension and ANS arousal. These internal events can become cues for you to use your relaxation to prevent an escalation of this tension and arousal. You can stop the tension before it causes or aggravates a headache. If stress is causing the tension this awareness can also cue you to make changes in the way that you cope with the stress (more about this in later units).
>
> b) Many headache sufferers who practice relaxation regularly become aware of previously unnoticed, subtle changes in how they feel prior to an actual headache. This provides an

early warning so that steps can be taken to prevent or alleviate the headache. Research with migraine patients has shown that a variety of physiological changes can occur hours, and even days, before the actual headache occurs. Subtle physiological changes can also precede a tension headache. An early awareness of these changes coupled with the knowledge of how to cope with the headaches can give you a needed headstart in your efforts to control them.

c) In addition to increasing your sensitivity to changes in various physiological processes, relaxation skills can improve your ability to notice triggers that affect these processes and ultimately bring on a headache. The identification of headache triggers is another important technique for many persons in the management of their headaches.

5) Headache sufferers who become proficient at relaxation skills frequently experience profound improvements in their attitude, outlook, and general self-concept. By learning to relax effectively you gain a greater sense of control over yourself and your life. This can significantly improve your abilities to cope with the headaches and other stresses in your life.

6) The majority of persons with headaches who have used relaxation have benefited from it, and for many it has resulted in profound improvements in their condition. Its proven effectiveness and the lack of negative side effects that often occur with medications make relaxation a very attractive treatment approach for headaches.

Getting Started With Relaxation

The relaxation training components of your headache management program are designed to systematically help you learn relaxation skills and how to apply them in your daily life. A series of cassette audio tapes containing relaxation training exercises will be used as part of the program. These cassette tapes are intended to assist you in the daily home practice of relaxation.

The initial emphasis in training is on muscular relaxation skills as opposed to relaxation of the autonomic nervous system. This type of relaxation is emphasized first because the muscles are easier to control voluntarily than other systems in the body.

We consciously control our muscles all the time, but most people have never consciously tried to control their ANS. Secondly, muscle tension places large demands on the other systems of the body such as the heart and respiratory system. As the muscles of the body relax these other systems can also relax, which means the ANS becomes less aroused. Another reason for initially focusing on the muscles is to begin immediately breaking up the

pain-tension cycle that is likely to be present if you have frequent headaches.

The Tense-Release Approach to Relaxation

The relaxation exercise that you will begin with involves alternately tensing, then relaxing various muscles throughout your body. Please note that the word "exercise" is used here as a convenient way to describe the activities in the relaxation practice sessions. Practicing relaxation is not meant to be a physical workout. You do not need to tense your muscle as hard as possible during the tensing phases of the exercise. Create a moderately-high level of tension, not an extreme level.

If you have any physical problems that might be aggravated by the tensing of certain muscles groups do not do the tensing component of the exercise for the involved areas. Focus only on the release of tension from these muscle groups.

The tense-release approach has used successfully for years to teach muscular relaxation. It is especially useful in helping you learn the difference between the sensations associated with tense muscles versus those associated with muscles in a relaxed state. By first tensing the muscle and then releasing it a large reduction in muscle tension rapidly occurs which allows you to clearly distinguish the two muscle states. When you release the tensed muscle do so rapidly, the best relaxation is achieved when the tension is released all at once. The quick release of the contracted muscle creates a kind of momentum that moves the muscle to a deeper level of relaxation.

A Note On Breathing

Each relaxation exercise begins with instructions for moderately deep breaths and a slow relaxed exhalation. These short breathing exercises allow you to initially slow your body down at the beginning of the relaxation practice session. The exhalation of a breath naturally involves relaxation of your diaphragm.

Breathing is very much affected by tension levels within the body. When we are tense breathing often becomes short, shallow, and more rapid. Breathing techniques can be very useful in applying relaxation to your daily life and will be incorporated later in your training program.

Practice is Essential!

To master relaxation skills you must practice them. The regular practice of relaxation may be the single most important factor in determining the degree of benefit that this approach provides you. Make the use of your relaxation exercises a priority and plan to practice with them daily for the duration of this treatment program.

Each taped relaxation exercise lasts approximately 20-25 minutes. Try to set aside a one-half hour block of time each day

as your "relaxation time." The extra time will insure that you do not feel rushed or pressured during the practice session. Many people find the afternoon or early evening a good time to practice relaxation. If desired, a second practice session can be included at bedtime. However, if you practice only once on a given day it should be at a time other than bedtime.

Creating a Relaxed Environment

Although eventually you will want to make use of your relaxation skills during your daily life, you should initially practice them under ideal conditions. Find a place that is quiet, comfortable, and without distractions. You can practice in a comfortable chair, such as a recliner, or in bed, or even on the floor. It is important that you are comfortable and your body is well supported during the practice session.

A Relaxed Attitude

The conscious contraction of muscles and the release of this contraction is an easy and familiar action for all of us, as when we clench our fist then release it. The tense-release approach to relaxation makes use of this familiar skill. However, this relaxation exercise is intended to help you achieve a deeper level of relaxation than simply releasing the tension you have consciously created. It is intended to assist you in releasing tension that was present in your body prior to beginning the exercise -- tension that normally you may not even be aware of. For most people, achieving this deeper level of relaxation is not a familiar activity.

Since achieving deep relaxation is likely to be new for you, a few words about how you approach this task are in order. In essence "relaxation" means "letting go" of tension that is already present in your muscles. You cannot "force" relaxation to occur. This only leads to increased tension. As you listen to the tape just lay back and allow it to guide you through your body. During the release or relaxation phases of the exercise let the relaxation occur, don't try to make it happen.

As you practice try to be aware of the various internal sensations that are associated with both tension and relaxation. If you have difficulty noticing these sensations, keep in mind that relaxation is a new skill for you. Your awareness of these feelings will gradually develop with practice. It is helpful to describe to yourself the sensations that you experience during relaxation. As your ability to describe internal sensations improves so will your awareness of them. It is best to close your eyes while practicing relaxation to reduce any visual distractions.

Try not to be self-critical or concerned about how well you are doing during the exercise. This type of thinking does not help you relax, and it can lead to frustration and increased tension.

Be Patient

While some people make rapid progress in learning relaxation many find that the progress they make is very gradual. Full relaxation is often difficult to attain and the application of relaxation skills can be harder yet. If you find this to be the case don't be discouraged. Indeed, you may be the type of person who can benefit most from the relaxation! Virtually anyone can learn relaxation skills, although it takes some time and practice.

What to Expect

When your muscles relax it is likely that your body will begin to feel heavy and limp. Your muscles may also jerk or twitch occasionally. These are good signs of muscular relaxation.

You may find that some areas are difficult to relax and remain tense even after completing the tape. This is especially likely to be true of the muscles in the neck, shoulders, back, scalp, and face. At this point in your relaxation training don't be concerned if you cannot fully relax all the muscle groups in your body.

As mentioned earlier, when the large muscles of your body relax other systems tend to also slow down and relax. Some of the changes that can occur include dilation of the blood vessels in your hands and other locations, reduced heart rate, slowed breathing, and slowed brain wave patterns. Most of these changes result from a general slowdown of the autonomic nervous system. As a result you may experience feelings of warmth and tingling, and possibly sensations that your hands or limbs are expanding or floating in space. These types of sensations are a good indication that you are achieving relaxation of the autonomic nervous system. They may seem strange or unusual, but this is only because complete relaxation is a physical state that is new to you. Welcome these sensations since they are important signals that your body is becoming quite relaxed overall.

During practice sessions you may find yourself mentally drifting off or having dream-like images. This suggests that you are letting go of mental tension and probably quite relaxed. Some degree of drowsiness often accompanies successful relaxation, although it is not the goal of practice.

Common Problems In Learning Relaxation

Although relaxation skills can be learned by virtually anyone problems and difficulties can arise during training that interfere with the smooth acquisition of these skills. This section is intended to help you troubleshoot some problems that you may experience during your relaxation training program. You may want to review this material occasionally during the first several weeks of the program.

Trouble Finding the Time or Place to Practice

Since regular practice is essential to the development of relaxation skills you must make the use of the relaxation tapes a priority in your life for the duration of the training program. If the practice of relaxation is constantly being pushed aside in favor of other activities you may need to reassess your priorities. It is common for people to feel that personal activities such as relaxation (and exercise) are "less important" than work or meeting the needs of others. Headaches are often part of the price paid for this attitude.

Some people feel guilty when they practice relaxation -- thinking that they are wasting time or that they "should be" doing something else. For most of these people, however, relaxation turns out to be a very good investment of time. Relaxation helps them gain control of their headaches and as a result reduces the amount of lost efficiency and "wasted time" caused by headaches.

Sometimes finding a quiet, comfortable environment that is free from distractions is a difficult task. This is especially likely to be true if you have small children in the home. A degree of assertiveness may be needed with family members or others in the home. Discuss the importance of relaxation training with them and try to work out an arrangement that will allow you time to practice with the relaxation. This may require some negotiation and compromise. Look for practice times when distractions are minimized, but not times when you will feel rushed or pressured.

Intruding Thoughts

To some degree everyone experiences intruding thoughts and mental distractions when practicing relaxation. Do not become upset or obsessed with these. When your thoughts wander from the relaxation exercise simply bring your attention back to the instructions that the tape is providing you.

Muscle Pain or Cramping

If this type of problem occurs you may be tightening your muscles too much during the tensing phases of the relaxation exercise. Tighten your muscles to the point where you can clearly feel tension, but don't overdo it.

The taped instructions assume that you do not have any physical problems or injuries that would be irritated by the tensing components. If tensing certain areas is causing aggravated pain skip over them. Focus instead on relaxing those parts of your body.

Awareness of Pain

Paying close attention to bodily sensations, as is done during relaxation, will sometimes increase a person's awareness of existing pain. If this occurs try to refocus your attention

on the sensations associated with tension and relaxation rather than the pain. If there are measures that you can take to become more comfortable, such as using a heating pad, make use of them while practicing the relaxation.

Relaxation is ultimately intended as a means of preventing headaches or stopping them in the early stages. The effects of relaxation used during a headache vary from one person to another. For some it will reduce the headache, while others find that it has no effect or actually worsens the headache. You will have to experiment to determine its affect on your headaches.

Difficulty Applying the Relaxation Skills

As you practice more with the relaxation you may become increasingly aware of tension in your body while going about your daily activities. Releasing this tension or keeping the muscles relaxed if often difficult, however, even if you are able to relax quite deeply when practicing with the tape. This increased awareness of tension without a corresponding level of control over it is a common and frustrating experience for persons who are beginning to learn relaxation skills. At this point in the training program the emphasis is on simply developing the basic skills of relaxation. Try to apply the relaxation in your daily life, but for now consider any successes in doing so a bonus. As you proceed with relaxation training specific techniques will be employed to assist you in using the skills throughout the day.

HEADACHE SELF-MANAGEMENT PROGRAM

* UNIT TWO *

John Kesselring, M.A.

Research Draft-

Do Not Duplicate

MORE ABOUT HEADACHES

In Unit One basic mechanisms of vascular and muscle-contraction headaches were discussed. This material was intended to provide you with a useful way of looking at your headaches and was based on traditional explanations of the mechanisms of these headaches. However, the processes that underlie both types of headache are actually much more complex than those described, and in many areas not well understood.

We will now examine some of the causes and mechanisms of headache in more detail. Again, don't be put off by the technical nature of some of the information presented. A knowledge of some of the complexities of headaches can help you better understand your headache problem and how to control it. A full understanding of this material is certainly not essential for the successful use of the various self-help techniques in this program. The various pieces of information that we know about headache processes do not always fit together neatly and are sometimes perplexing even to experts in the field.

Migraine (Vascular) Headache

The causes of vascular headaches are not well understood, but a number of physiological changes involving the nervous system, blood vessels, and body chemistry have been found to be associated with them. The identification of these complex and interrelated physiological changes has shed light on the role of various triggers and treatments for migraine. This information has also helped us understand the sources of pain associated with vascular headaches.

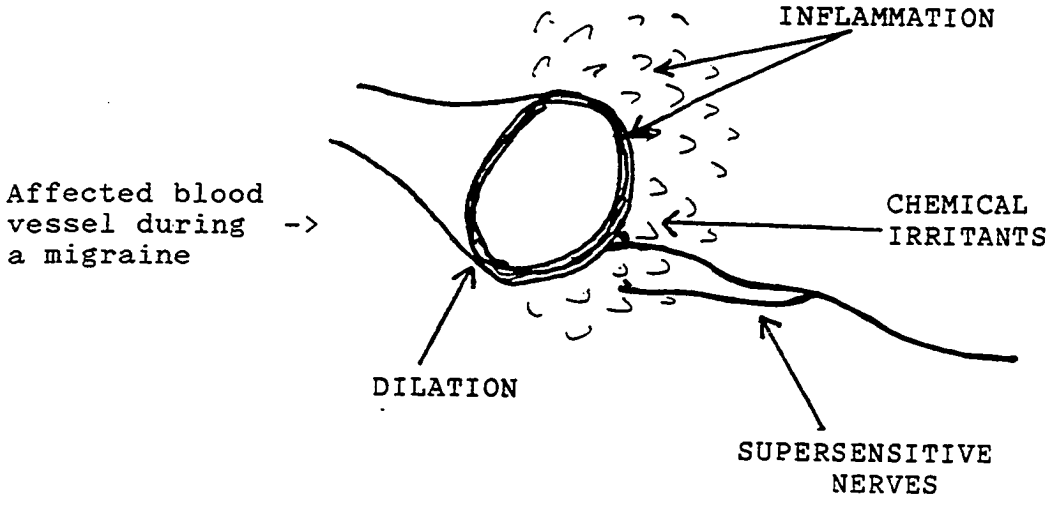
Inflammation

While the dilation of various scalp arteries is a central component to vascular headaches it turns out to be only one of several factors that underlie the headache. Dilation of the blood vessels appears to be necessary, but not sufficient to account for the degree of pain experienced during vascular headaches such as migraines. Inflammation of the blood vessel wall and surrounding body tissue appears to be a second condition necessary for the presence of vascular headache pain.

Biochemical Factors

Other factors also contribute to the pain of migraine headaches. Various chemicals such as neurokinin, histamine, and the prostaglandins accumulate in the region of inflammation surrounding the blood vessel. These chemicals contribute to the headache pain in several ways. First, some are irritating substances that cause painful stimulation of nerves in the area. Secondly, many of the substances increase the degree of painful inflammation present. Finally, some of these chemicals increase

the sensitivity of the nerves. Because of this supersensitivity the degree of pain experienced from vasodilation, inflammation, and chemical irritants is heightened.



Serotonin

Serotonin is a chemical substance, known as an amine, found in our bodies. The amines play many roles in the body including the transmission of impulses in the nervous system and the control of various systems within the body. In the brain serotonin exerts an influence on sleep, pain perception, and our moods. It is also involved in the regulation of vasomotor activity, in other words the constriction and dilation of blood vessels throughout the body.

Many researchers believe that abnormalities in the regulation of blood vessels by serotonin is of great importance as a cause of migraine. Profound changes in serotonin levels in the body have been found to occur during a migraine headache. Initially during a migraine attack (usually prior to the headache itself) there is a large release of serotonin into the blood stream. This results in a depletion of stored serotonin and a subsequent drop in its levels within the body. This decrease in serotonin is associated with the dilation of scalp arteries in the region of pain during a migraine.

Decreased levels of serotonin may also make us more sensitive to pain sensations. This is another reason why a migraine type headache can be so severe.

Endorphins

The endorphins are substances within the body that act as natural pain relievers. Narcotic pain killers such as codeine

and morphine chemically resemble the endorphins. This may account for the pain relieving properties of these drugs. Recent research suggests that endorphin levels in the body are reduced during migraine headaches -- another factor that may increase the pain sensitivity of an individual experiencing a migraine!

Prodromes

The term "prodrome" refers to symptoms that occur prior to a migraine headache. Visual abnormalities, weakness, numbness, dizziness, and mood changes are some of the more common symptoms experienced as part of a prodrome. Occasionally speech difficulties such as slurring, and partial paralysis are found to occur.

These various symptoms appear to arise from abnormalities in the functioning of certain areas of the brain that are not receiving an adequate supply of oxygen. This ischemia results from the constriction of arteries supplying that region of the brain. This vasoconstriction typically precedes the actual headache and may be caused by the release of serotonin discussed previously.

Individuals who experience distinct prodromal symptoms prior to the actual headache are said to have "classic" migraines. Those who do not experience this distinct prodrome are said to have "common" migraines. Although the so-called common migraine lacks the obvious prodromal symptoms of classic migraines, various nonspecific or subtle pre-headache changes may still occur. These can include mood changes, water retention, food cravings, and sleep disturbances. Physiological changes can precede migraine headaches by hours, even days, regardless of whether or not noticeable prodromal symptoms are present. As you practice with relaxation and continue the recording of your headaches your awareness of preheadache changes can improve.

Accompanying Symptoms

While head pain is the most obvious symptom (usually), migraine is a problem that affects the entire body. As with the prodromal symptoms many of the symptoms that accompany a migraine are related to biochemical and nervous system disturbances. The digestive tract is commonly affected with problems such as nausea, vomiting, diarrhea, loss of appetite, poor digestion, and abdominal pain present. Other symptoms that can occur include cold extremities, chills, fever, water retention, body aches, muscular tension, and heightened sensitivity to noise and light. Some people will experience visual disturbances and other symptoms associated with prodromes, during, rather than before the headache. An often unmentioned finding is that sexual arousal is not uncommon during a migraine. This is a result of physiological changes during the headache.

Given the wide range of symptoms likely to be present during a migraine it is no wonder that these are often described as "sick headaches". The headache can leave a person physically

drained and recovery may take a couple of days following a bad headache.

Migraine Equivalents

Persons who are prone to migraine may periodically experience various symptoms of migraine without the occurrence of the headache itself. Visual disturbances, numbness, weakness, mood changes, stomach distress, motion sickness, and dizziness are examples of these symptoms.

These types of episodes are known as "migraine equivalents" and are essentially migraine attacks without the headache component. Migraine equivalents result from the same types of physical disturbances associated with migraine headaches, such as the constriction of certain blood vessels that supply the brain.

Muscle-Contraction Headache

The notion that muscle-contraction or tension headaches are simply the result of the sustained contraction of scalp and neck muscles is becoming less viable as the disorder is studied further by scientists. It is clear that the chronic tensing of muscles will cause pain and for some individuals this may completely account for their headaches. However, it appears that for most persons who show the tension headache pattern other physiological disturbances come into play. These processes have not been well identified, but some of the possibilities are discussed below.

Vasoconstriction

There is some research suggesting that persons with tension headache have a vascular abnormality which causes constriction of certain blood vessels. This constriction occurs independently but has the same effects as the compression of the blood vessels due to muscle tension: ischemic pain and the accumulation of irritating metabolites.

Vasodilation

Some researchers believe that many so-called muscle-contraction headaches are actually vascular headaches involving vasodilation as well as the other processes associated with vascular headaches. From this point of view the majority of common headaches are thought to be vascular in origin. Full-blown migraine headaches would represent the more severe of the vascular headaches.

Serotonin

There is evidence that persons with tension headaches tend to have lower overall levels of serotonin compared to individuals without headaches. This abnormally low level of serotonin could result in disturbances in the regulation of blood vessels leading

to excessive vasoconstriction and dilation. It might also cause a heightened sensitivity to pain resulting in the experience of a chronic dull headache.

Serotonin abnormalities are also related to disturbances of mood. Reduced serotonin levels are associated with mental depression. It is interesting that depressed individuals frequently complain of headache (although it is certainly not the case that everyone with headaches is depressed).

Endorphins

As with migraine sufferers, some recent studies have found that those with tension headaches tend to have lower than normal endorphin levels. Recall that this may heighten the individuals experience of pain.

Trigger Points

Trigger points are small regions of hypersensitivity in the muscles. A trigger point in the muscle is likely to be quite tender to the touch and feels knotty or cord-like when rubbed or pressed on. Irritation of these points can result in pain. Often there is "referred pain" which is pain experienced at a location other than the trigger point itself. For example, pressing on a trigger point in the neck can cause pain on the top of the head. Trigger points tend to be aggravated by chronic muscle tension and may actually result from it.

The Severity Model

Migraine and muscle-contraction headaches have long been considered separate and distinct disorders. Yet, as you have probably noticed, a number of similar processes have been identified in relation to both types of headache. As research into headaches has progressed the complexity of their underlying causes is becoming more obvious, and the distinction between muscle-contraction and vascular headaches has become increasingly blurred.

Another weakness in the traditional classification scheme is that many, if not most, headache sufferers do not fit neatly into the diagnostic categories. It is noteworthy that there are no definitive tests for migraine, muscle-contraction, or mixed headaches. Diagnosis is based on the patient's history of headaches along with ruling out more serious causes of headache such as a tumor in the brain.

In recent years an alternative way of conceptualizing headaches has been introduced. This perspective, which has been called the "Severity Model," assumes that both types of headaches share many common mechanisms. Rather than viewing muscle-contraction and migraine headaches as totally separate disorders, they are seen as lying on different ends of a continuum. The distinguishing factor between migraine and muscle-contraction

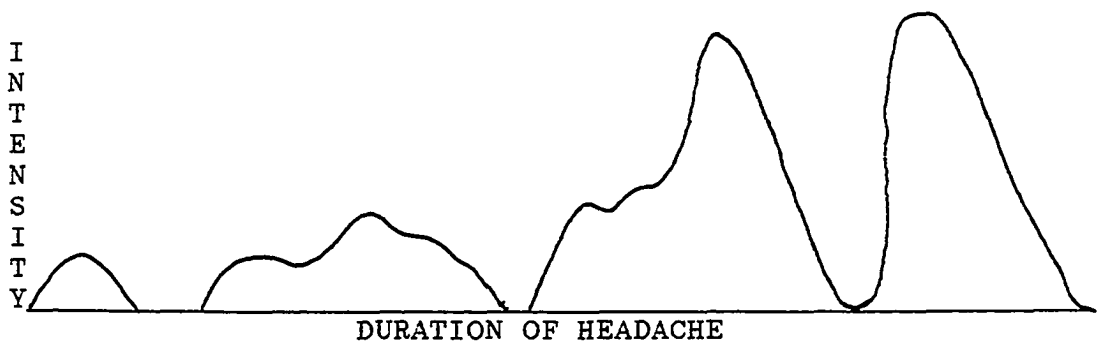
headaches is the pattern of headaches, not their assumed causes. Migraine headaches are more severe, episodic, and often accompanied by symptoms such as stomach upset. Muscle-contraction or tension headaches are less severe, and not usually accompanied by other symptoms. Mixed headache patterns share characteristics of both headache types.

The diagram on the following page depicts continuum on which headache patterns may lie. The elevations on the diagram represent the severity of the headache, while the width of the elevations represent the duration of the headache. At the extreme left the occasional, mild headache is represented. On the extreme right the episodic, severe migraine type headache is represented. The middle portion of the continuum represents more of a mixture of headache patterns with episodic severe headaches occurring in the presence of more constant low grade headaches.

Most people with an extreme mixed headache pattern originally had headaches that fell toward either the left or right ends of the continuum. In other words they experienced either occasional tension headaches or occasional migraine headaches. As their headache problem worsened they moved more toward the center of the continuum, with an increase in the severity of their headaches and/or an increase in the amount of time the were experiencing headaches.

TENSION HEADACHE	MIXED HEADACHE	MIGRAINE HEADACHE

mild pain ----------> intense pain
generalized, dull pain ----------> localized, sharp pain
waxes and wanes ----------> episodic
no other symptoms ----------> many other symptoms



The diagnosis and treatment of headache is not an exact science and the debate over headache classification will surely

continue for years to come. The traditional diagnostic classifications do seem to have value in providing direction for medical treatment, especially if an individual's headache pattern fits nicely at one of the ends of the continuum. For the purpose of headache self-management, however, the Severity Model offers certain advantages as a way of conceptualizing problem headaches.

In a sense the Severity Model allows us to view virtually all problem headaches as mixed headaches, rather than classifying them as either vascular or muscular in origin. This can be important because headache self-management requires open-minded personal observation as well as experimentation with a variety of techniques. If one classifies his or her headaches as a specific type there is a danger that important factors and techniques will be overlooked in trying to deal with them. For example, if a person assumes his headaches are strictly of the muscle-contraction type he would not be inclined to consider dietary factors as potential headache triggers. His progress in controlling his headaches would be hindered if, in fact, erratic eating habits did aggravate his headaches. It is best to remain open to all possibilities when attempting to manage your headaches and the Severity Model allows for this.

Throughout the rest of this treatment program the terms muscle-contraction, tension, vascular, and migraine will continue to be used frequently to describe headaches. For our purposes these terms describe the pattern of headaches a person experiences which includes such qualities as the severity, location, and type of pain present. The terms are used for convenience and should not be thought of as explanations of the causes of the headaches.

HEADACHE TRIGGERS

The physiological disturbances that cause headache can result from a variety of provoking factors known as headache triggers. A headache trigger is anything that produces or sets into motion the changes within the body that bring on a headache or make an existing headache worse. Headache triggers include substances or conditions in the environment, physical or chemical changes within the body, stress and emotions, and dietary factors. Many headache triggers are things that are vasoactive (cause vasoconstriction or vasodilation) or things that escalate the pain-tension cycle.

The isolation of personal headache triggers can be a very important part of your headache self-management program. Once a trigger is identified steps can often be taken to avoid it, alter it, or remove it from your environment. With certain triggers, such as stress, avoidance of the triggering situation may be impossible or undesirable. However, even with unavoidable triggers such as stress you can learn to cope more effectively with those problem situations and thus reduce their impact on your headaches.

Headache triggers can act alone, but it must be emphasized that they frequently act in <u>combination</u>. For instance, occasionally missing a meal or feeling the pressure of an important work deadline may have little effect on headaches when you are exposed to them individually. But if you combine them -- such as by skipping lunch to meet that deadline, you may experience a nasty headache before the day is done. By exposing yourself to multiple triggers you allow them to act in combination and thus increase the likelihood that a headache will be provoked or aggravated.

Your susceptibility to a given headache trigger can also change over time. You may now be sensitive to things that didn't bother you at all in the past. It is also possible to lose your sensitivity to a trigger over time.

The fact that a combination of triggers may be necessary to provoke a headache, or that your susceptibility to a trigger can change over time makes the identification of headache triggers more difficult. Don't let this deter you from looking for them. A knowledge of headache triggers along with methods for identifying them has proven to be very effective for many in isolating their own personal headache triggers. In this section of the manual some common headache triggers are discussed. Headache triggers will also be discussed in subsequent units.

<u>Caffeine and Headaches</u>

Many people find that caffeine is a good remedy for a headache, yet caffeine can be a major problem for headache sufferers. Caffeine can help alleviate a headache because it constricts painfully dilated vessels that are associated with vascular headache mechanisms. Certain medications used to abort

vascular headaches such as Cafergot contain caffeine for its vasoconstricting properties. Even many non-prescription headache remedies including Excedrin and Anacin contain caffeine.

There are two primary ways that caffeine can aggravate a headache. One potential problem arises because caffeine is a stimulant of the nervous system. This can contribute to physiological arousal and tension that is likely to worsen a headache. Rebound headaches are a second, and probably more common manner in which headaches can be aggravated by caffeine. These are discussed below.

When used occasionally caffeine is potentially quite helpful in controlling a headache. However, if one consumes caffeine on a regular basis the body develops a tolerance to its vasoconstricting effects. As this tolerance develops the absence of caffeine in the body can result in rebound vasodilation, and the subsequent development of a headache. These are known as <u>rebound headaches</u> and can affect anyone who regularly consumes caffeine such as the daily drinker of coffee or tea. If you consume caffeine regularly you may experience a rebound headache <u>every morning</u> because the levels of this drug in your system decrease through the night. If one of the first things you do upon arising is consume caffeine there is good reason to suspect the possibility that you are caught in a vicious circle of rebound headaches. Beverages such as coffee, tea, and cola are the most common source of caffeine, but many people also consume caffeine in various medications. Common medications that contain caffeine include Excedrin, Anacin, Vanquish, APC compounds, Midol, and cold or sinus pills (read labels!).

Caffeine rebound headaches represent one of the many "traps" that a headache sufferer can fall into. The trap results from the fact that caffeine itself is one of the best ways to relieve a rebound headache. It represents both the cure and the cause. Another aspect of the trap is that the use of caffeine may increase gradually over a long period of time. The rebound cycle slowly strengthens, often without the awareness of the person caught in it.

People who consume caffeine throughout the day are especially likely to experience rebound headaches. Even though it is probably not the sole cause of your headaches, a reduction in caffeine consumption can be very beneficial if you are a regular user. However, if you are a heavy user of caffeine it is unwise to abruptly stop its use -- a severe rebound headache can result!

A good approach is to gradually reduce your consumption over a period of several weeks. This allows your body to slowly adjust to the absence of caffeine. Even when you reduce your consumption gradually there may be an initial increase in your headaches, but this should pass rather quickly and will typically be followed by a reduction in headaches. Indeed, if your headaches do increase following a reduction in caffeine consumption this is evidence that caffeine has been a contributing factor to your headache problem.

Analgesic Rebound

The excessive use of analgesics can also cause rebound headaches. This is especially true of the more potent prescription pain relievers such as Talwin, Demerol, Darvon, Darvocet, Percodan, Percocet, and those that contain codeine. As you'll recall the narcotic analgesics are chemicals that resemble own body's own natural pain killers, the endorphins. It appears that repeated use of these potent analgesics can cause the body to produce less of the endorphins. As a result the body becomes more dependent on the external drug to reduce pain sensations, and without the drug it is especially sensitive to pain. This can set up a rebound headache cycle where the pain relievers actually become part of the headache problem.

Other Medications

Ergotamine is a potent vasoconstrictor that is effective for many migraine sufferers as an abortive treatment. It is contained in various medications including Cafergot, Ergomar, Wigraine, Ergostat, and Bellergal. It is a very potent drug that can cause toxic reactions if taken excessively. Excessive use can also result in severe rebound headaches. If you suspect that you are using ergotamine excessively consult your physician.

Various sinus and cold preparations contain substances that can aggravate headaches if used excessively. Some of these drugs are stimulants and vasoconstrictors that can result in rebound headaches. Most of the over-the-counter diet pills contain the same types of drugs as cold pills.

Some people erroneously believe that they have sinus or allergy related headaches because pain is present around the eyes and the pain is reduced by sinus medications. It is quite likely, however, that the headaches have a vascular mechanism. The sinus medications could be effective in relieving pain since they have vasoconstricting effects as well as other potential pain relieving properties. Regular use of these types of medications can create the problem of rebound headaches.

Alcohol

Alcohol is a vasodilator and can be a potent trigger of vascular headaches. Certain alcoholic beverages can be especially troublesome because they contain vasoactive substances known as monoamines. Various red wines are often a problem.

Missing Meals

The brain is very sensitive to the amount of sugar in the blood stream. When sugar levels drop, rapid vasodilation within the brain occurs. An abnormally low level of blood sugar is a condition known as hypoglycemia. Headache is a common symptom of hypoglycemia. For persons prone to headache reductions in blood sugar to levels not even considered abnormal may be enough to trigger a headache.

Lowered blood sugar levels can result from prolonged periods of time without food. For some morning headaches may relate to a decreasing blood sugar level that has occurred through the night.

Skipping meals is also a very common trigger of headaches.

The consumption of foods and beverages high in sugar can also lead to low blood sugar and a subsequent headache. When simple sugars are consumed blood sugar levels may rise rapidly, which in turn causes the body to secrete large amounts of insulin. Insulin assists in the conversion of sugar into energy in the body. The excessive secretion of insulin can cause the sugar to be rapidly used up resulting in a decrease in blood sugar levels (and the development of a headache).

Most people who have problems with headaches should avoid skipping meals. Some headache sufferers find that it is helpful to eat smaller meals spaced throughout the day. Eating a protein snack before bed is sometimes helpful for alleviating morning headaches. Sugary snacks may also be a problem.

Excessive or Inadequate Sleep

Stable sleep patterns are important in the management of many headache problems. Excessive sleep can trigger a headache, although the reasons for this have not been clearly identified. Complex physiological changes occur during different stages of sleep including changes in serotonin levels, oxygen and sugar levels in the bloodstream, and bloodflow to the brain. Any of these changes can affect headache activity. Other factors may come into play. For example, sleeping in later than usual may lead an individual to eat later than usual, or to miss his early morning dose of caffeine which could result in a rebound headache.

Inadequate sleep can also aggravate headaches. Fatigue is a frequently cited headache trigger and is likely to be greater when a person is lacking sleep.

Headaches sufferers should generally strive to obtain an adequate amount of sleep and should try to maintain stable sleep patterns. If you plan to sleep longer than usual it may help to get up at your regular time and eat a small amount of food.

Hormonal Changes

About 60% of women who have vascular headache patterns find there is a relationship between their menstrual cycle and headache activity. Many women first started having problems with headaches during adolescence. Other events associated with hormonal changes, such as pregnancy or the use of oral contraceptives, are also frequently associated with the onset or worsening of headaches in women.

The connection between female hormones and vascular headaches is underscored by the fact that migraine headaches are approximately four times more likely to occur in women than in men. On the other hand, in prepubescent males and females the prevalence of migraine is approximately equal.

As with so many of the triggers the precise role of hormones in aggravating headaches has not been established. Declining estrogen levels do appear to have a destabilizing effect on the blood vessels which may account for increased headaches prior to and during a woman's menstrual period.

Women who do find a relationship between their headaches and menstrual cycle should attempt to avoid other triggers as much as possible on those days when they are at highest risk to have a headache. The use of relaxation techniques can be helpful. You may wish to consult your physician regarding dietary changes and medications that can be useful for controlling symptoms relating to the menstrual cycle.

In women with migraines, oral contraceptives often significantly worsen their headaches.

Bracing of Muscles

It is common for most of us to unnecessarily hold tension in our muscles. This tendency is frequently an aggravating factor in headache conditions. This bracing or tensing of muscles in many instances is simply a habit that we have developed over our lifetime. Many people hold tension in the upper back, neck, and shoulders, as well as in the muscles that control the jaw. Certainly tension may be held in other muscles of the body as well.

The habitual bracing or tensing of muscles is likely to be increased when we engage in certain activities. Activities such as driving that require alertness are often associated with bracing, but it is not uncommon to brace muscles while engaged in sedentary activities such as reading or watching television. Our tension levels also tend to increase, sometimes dramatically, when we are under stress or pressures. Bracing is also likely to occur in response to existing pain or irritation. For example, someone with arthritis in the region of the neck will be more prone to tense the muscles of this area (recall this process as described in the pain-tension cycle). This can result in increased pain levels due to the development muscular pain in addition to the arthritic pain. Poor posture is another factor that can contribute to muscle bracing.

Most of us are not aware of the degree to which we brace or tense our muscles. Relaxation training is important in gaining an increased awareness of these habits. The acquisition of relaxation skills is also useful in undoing these habits. This control, however, takes more time and a conscious effort to apply relaxation skills.

A lifetime habit of jaw clenching is not going to undone in a week or two. Habits such as this can be overcome, but you must work at it. A good place to start is to mentally scan the muscles of your body regularly throughout the day. When tension is found take a moment to release those muscles. Try to notice those situations in which you are most likely to brace muscles and repeat this releasing process more often at those times.

More specific techniques for doing this will be presented in subsequent units.

Exercise or Physical Exertion

Headaches can be aggravated or brought on by physical exertion as when lifting or moving heavy objects, or when engaged in exercise such as running. Pacing yourself to avoid excessive exertion can be helpful in avoiding this problem. Moderate exercise is desirable both for general health and for controlling headaches. There is evidence that gradual warm-up activities prior to more intense exercise can prevent many of the problems associated with this headache trigger. Also pay attention to unneeded bracing patterns that you may exhibit while exercising or exerting yourself (e.g. jaw clenching).

Environmental Factors

Inadequate or glaring lights can bring on or aggravate a headache. It is important to have appropriate lighting especially in environments where you spend large amounts of time such as the workplace.

Smokey or stuffy rooms can trigger headaches. This may relate to decreases in oxygen levels in the blood. High altitudes will worsen headaches for some people. Reduced oxygen levels may also be the mechanism behind this trigger.

Various chemicals in the environment can trigger headaches probably because they are vasoactive. Gasoline, paints, solvents, carbon monoxide, cleaning solutions, and glues represent some of these potential chemical triggers. Nitrates (contained in fertilizers) are another group of compounds that can bring on headaches.

Certain weather conditions are associated with increased headache activity. Evidence points to reduced barometric pressure as the primary culprit. Rapid temperature changes can trigger headaches -- this can include going from warm to cold or visa versa when going indoors or outdoors. Excessive exposure to the sun can provoke headaches.

Stress

The single most commonly identified trigger for headaches is stress. The word "stress" is used to describe a wide range of psychological and emotional factors. Frequently the term describes our reactions to situations that we perceive as threatening or situations that will tax our abilities to cope. The situations or events themselves are referred to as stressors.

Potent stressors in our lives include things such as the loss of a job, divorce, or the death of a loved one. The various emotional responses we experience in response to these stressors, such as fear and anger, are associated with various physiological changes within the body that can potentially trigger a headache. The physiological changes include increased muscle tension and activation of the autonomic nervous system.

The concept of stress also applies to many of the daily hassles we experience in our lives. Work pressures, family problems, financial difficulties, and hectic schedules are all examples of common stressors. Of course headaches and other health problems can also contribute substantially to the amount of stress in our daily lives.

Excessive stress can cause just about anyone to have a headache. However, persons with headaches that are frequently provoked by stress do not necessarily have higher than normal levels of stress in their lives. Nor are these individuals necessarily less able to cope with stress. The problem may be an excessive sensitivity to the stress, just as the person may be excessively sensitive to other trigger factors such as unstable eating or sleeping patterns.

Regardless of whether a person with headaches has excessive stressors in his life, does not cope adequately with stress, or is simply very sensitive to stress, the task of dealing with this trigger remains the same -- to manage stress more effectively. There are a number of approaches to managing or controlling stress including relaxation training. The use of relaxation skills can be useful in counteracting the physical effects of stress such as muscle tension and ANS arousal. Controlling stress will be dealt with in greater detail in subsequent units. For the time being an important step you can take is to look for relationships between your headaches and stressful situations.

It should be pointed out that a number of people find that although headaches are not provoked during a stressful period, a headache will occur after the stress has subsided. For the person with this pattern surviving the weekend with visiting in-laws might not pose a problem -- until monday morning when a terrific headache appears!

Other Psychological Factors

In addition to stress there are other psychological factors that can aggravate problem headaches. As mentioned previously mental depression is one of these factors, and there are others. These will be covered later in the program.

Controlling Triggers

A good place to begin in gaining control over headache triggers is to moderate and stabilize various lifestyle factors that may be aggravating your headache condition. Try to maintain stable and regular patterns of eating, sleeping, and exercising. Avoid excesses in these areas as well as in the consumption of caffeine and various medications. If you are a heavy user of caffeine, pain medications, sinus medications, and so forth, gradual reduce your consumption over a period of several weeks. If prescribed medications are involved consult your physician before making any changes.

When a headache occurs or is worsened keep a record of any potential factors that you suspect could have acted as triggers (you are asked to this on your data records but may wish to keep a separate log since you will be turning in the headache records). Things that continue to appear in your records as possible triggers are especially likely to truly be trigger factors. Changes in your behavior with respect to suspected triggers can then be made (the most basic change being avoidance of the trigger) and the effects of these changes noted. This process essentially involves a personal research project to identify headache triggers. Unfortunately not all triggers can be controlled, as in the case of weather or natural hormonal fluctuations, but the identification of these triggers will provide an early warning as to when you are at high risk.

LEARNING TO RELAX: PART TWO

Passive Relaxation

The second taped relaxation exercise in the program does not involve a tensing component. It is a passive, mental approach that focuses entirely on the release of tension from the body. The taped instructions guide you through your body by directing your attention systematically to various body areas. This aspect of the exercise is similar to the Tense-Release approach, but the tensing component is omitted. Instead you are prompted to release tension from each area with the assistance of words and phrases associated with a relaxed state. Words such as "heavy", "loose", "limp", and so forth are employed to help you mentally allow the release of tension. This approach to relaxation is termed "passive relaxation" since there is no physical activity involved.

As in Unit One, muscular relaxation is emphasized in this second exercise. However, many people find that they are able to achieve a deeper level of relaxation with the passive approach. This may be partly do to the fact that there is no tensing component, thus removing this source of arousal or activity. If a deep level of muscular relaxation is attained physiological changes associated with relaxation of the autonomic nervous system (ANS) are likely to occur. This makes it more likely that you will experience sensations such as warmth, tingling, and floating, especially in your limbs.

The taped instructions do provide brief suggestions for allowing a warming sensation to occur in the hands. This is intended to encourage relaxation of the ANS and more specifically relaxation of the blood vessels (vasodilation). This is definitely a change that you cannot "force" to happen and failure to achieve it may be a sign that you are trying too hard. Take a very passive approach and just "let it happen." It may take time for you to develop the ability to warm your hands and the sensitivity to notice these subtle changes in your body.

It will be a good idea for you to review the material concerning relaxation that was presented in Unit One. Certain problems such as interfering thoughts or images occur more frequently with passive relaxation. When this occurs gently bring your attention back to the tape and what you are experiencing internally.

It is not uncommon for people to report mentally "drifting away" during passive relaxation and sometimes missing parts of the tape. If you consistently miss large segments of the exercise or actually fall asleep you may want to experiment with using the tape at a different time of day or practicing with your eyes open. In general the feeling of drifting off or being in a dreamy state is not something to worry about. In fact it is usually associated with deep relaxation. If you feel drowsy

after practicing, a brisk short walk or some other physical activity will help revive your alertness.

INSTRUCTIONS FOR UNIT TWO

1) Read Unit Two of the manual and listen to the tape entitled "Unit Two - Introduction".

2) Practice with the Passive Relaxation exercise on a daily basis.

3) Continue to record headaches and relaxation practice as you did in Unit One. Additionally you should record any potential headache triggers in the space provided on the data logs (bottom of front side).

4) Try to make appropriate changes with regard to lifestyle and trigger factors as discussed in the manual.

5) In 2 weeks return you data records and pick up materials for Unit Three.

HEADACHE SELF-MANAGEMENT PROGRAM

* UNIT THREE *

John Kesselring, M.A.

THE ROLE OF STRESS

Emotions and Our Bodies

Our bodies are affected by virtually all emotional reactions, although the intensity of these reactions varies a great deal. These emotional responses occur frequently in our daily lives and usually go unnoticed unless a strong emotional reaction has occurred. The word "stress" is often used to describe the more intense or prolonged emotional reactions that have a negative impact on our lives.

Normal, healthy emotions such as anger, fear, excitement, anxiety, and frustration affect us physically in many ways. A person anxiously awaiting an important job interview, for example, may show a variety of physiological responses that are experienced in ways such as cold and sweaty hands, tense muscles, "butterflies" in the stomach, and even shakiness. Biological functions including sleep, appetite, and digestion can be disrupted during highly emotional or stressful periods.

The Stress Response

Our ancestors lived in a world full of life threatening circumstances, such as attack by hostile animals or enemies. For them the physiological components of emotions were very important because they mobilized the body for action. Consider a caveman who is confronted by a wild animal. In this clearly threatening situation a powerful stress response would occur. A general alarm would sound throughout his nervous system causing faster breathing, a rapid heartbeat, increased blood pressure, tense muscles, the release of adrenalin, and a host of other changes. These changes result from the arousal of the autonomic nervous system and serve to prepare him for physical action, most likely to get away from or fight the animal. This extreme form of stress reaction occurs in both animals and humans and has been called the "fight or flight" response.

When we are physically threatened, the arousal effects of the fight or flight response are useful in helping us confront the challenge and survive. However, in our modern world most of the stressful situations that we encounter are less clear-cut than those faced by our ancestors who lived in caves and forests.

The stresses that we face: finances, deadlines, exams, interpersonal conflicts, and so forth, are rarely life-or-death situations. They cannot be effectively dealt with through brute-force or other physical reactions, yet our bodies still react to these stresses with the arousal of the fight or flight response. In these situations this type of stress response is not useful and can interfere with our ability to cope.

The Headache Connection

Stress is the single most commonly identified trigger of

headaches. If stress responses are occur too often, too intensely, or for too long a period of time various systems in the body may become overtaxed and physical problems result. High blood pressure, stomach problems, backaches and headaches are just a few examples of physical symptoms that can arise from stress. For many people with problem headaches pain is a sign that they are under excessive stress.

While excessive stress can give just about anyone a headache, the person who is prone to headaches may find that even moderate stress or emotional reactions will trigger or aggravate a headache. As mentioned in the previous unit, many headache sufferers tend to be more sensitive to stress than the average person, just as they are more sensitive to other triggers such as certain foods, bright lights, and so forth.

Stress can trigger or aggravate a headache in several ways. One mechanism involves the increase in muscle tension that tends to occur during stress. This, of course, can feed into the pain-tension cycle and cause pain. Stress also tends to have profound effects on blood vessels due to the arousal of the autonomic nervous system. In other words, stress is vasoactive and can provoke vascular headaches. Various changes also occur in body chemistry and in the nervous system that can set off a headache. For example, adrenalin is released in the body when we are under stress.

Perception and Stress

Our reactions to most situations are shaped by our personal learning backgrounds. This accounts for the wide variety of responses different people will make to the exact same situation.

In most instances past learning also determines our emotional response to a situation such as whether or not we will find that situation stressful. Certainly most people would exhibit stress responses if a vicious dog was running at them, but most sources of stress are not this clear-cut. Is talking in front of a group of people stressful? Extremely for some, yet not at all for others. What about an unpaid bill, criticism from the boss, meeting a new person, driving in heavy traffic, or simply going to the grocery store? The degree to which you find these circumstances are stressful to you will depend on how you perceive them. Stress is in the eye of the beholder.

We experience stressful emotional reactions when we perceive that a situation is threatening or that it will overtax our coping abilities. If you perceive that talking in front of a group is threatening or beyond your capabilities your emotional response to this situation will be stressful. On the other hand, if you are not threatened by this situation and you feel the task is within your abilities it will not be particularly stressful.

The way that we perceive the world influences most of our emotional and behavioral reactions. Consider, for example, three

students all of whom received a "C" on an exam in their biology class. The first student, Joe, reacts with fear and self-doubt. To him this is personal failure, he thinks of himself as dumb and considers it unlikely that he will pass the class. Joe feels guilty and believes that he should have studied more, and should have done better. In his mind there may also be the worry that he has let others down by failing to meet their expectations. Joe is under stress. The second student, Jack, is angry and hostile. Jack thinks he has been cheated and the teacher has it in for him. He doesn't blame himself like Joe did -- he blames the teacher. He is mad and no doubt under stress. Tom, the third student, has a different reaction from the other two. He is satisfied, even pleased and proud of himself. Tom is glad he passed the exam. He feels that it would have been nice to get a better grade, but a "C" is certainly nothing to be ashamed of or upset about. Tom is not under stress.

The example above illustrates how a person's attitudes and thoughts affect his reactions to a given situation by influencing his perception of that situation. We don't know if Jack actually got cheated or not -- but he perceived he did. To a large extent this perception was determined by his thoughts and beliefs.

EVENTS AND SITUATIONS

+

THOUGHTS, ATTITUDES, AND BELIEFS
[PERCEPTION]

REACTIONS

The types of thoughts and beliefs that determine if something will be perceived as stressful are usually those concerning the nature of the situation itself (e.g. is it threatening?) and our abilities to cope with it (e.g. do I have the skills and resources to deal with it?). In other words, the reactions we make to environmental events are strongly influenced by our appraisal of both the situation and our ability to cope with it.

Our patterns of thinking and belief systems shape the way we view the world and ourselves. These underlying thoughts and beliefs influence not only moods and emotional reactions, but also the decisions we make and the way we cope with the inevitable problems and hassles that constantly occur during our lives.

Distorted Thoughts and Irrational Beliefs

Many of the stressful and negative emotions that most of us experience are needless. They result from distorted and illogical ways of thinking, and erroneous and unrealistic beliefs we hold. We jump to conclusions without the facts to back us, make excessive demands on ourselves and others, dwell on negative events, magnify our problems, minimize our accomplishments, blame ourselves for things we can't control, and so on. The beliefs tend to become rigidly entrenched over the years and the thoughts come automatically. Although they are unrealistic or distorted they go unquestioned and often unnoticed.

Getting to know the beliefs and thoughts that govern our emotions and behavior can be an important aspect of managing stress. It allows us to assess the validity of them and determine their role in creating stress. It can be a useful first step in disrupting many of the automatic stress reactions that occur day after day in our lives. The awareness of these thoughts and beliefs also lays the foundation for establishing new and more adaptive ways of thinking and coping. Irrational, unrealistic, and distorted thoughts and beliefs can be disputed and replaced by rational and realistic thoughts. Some common stress inducing beliefs and ways of thinking are described below.

Should Statements

Many people constantly motivate themselves with attitudes and thoughts consisting of "shoulds", "shouldn'ts", "musts", "oughts", etc. If "should statements" are violated the consequence is guilt and self-blame. Joe, the first student in the example above, berated himself with should statements in response to his exam grade and experienced stress because of it.

Should statements represent demands that we make on ourselves or personal standards of conduct. Problems arise when these "shoulds" are unrealistic and perfectionistic, as well as rigidly held. Behavior that is motivated by should statements occurs largely to avoid guilt rather than to obtain rewards and satisfaction. However, guilt inevitably occurs since perfectionistic standards can never be consistently met. Even when guilt is successfully avoided the should statements constrain one's behavior -- limiting options and flexibility in dealing with the world.

Should statements can also be applied to the behavior of others as when we expect or demand people in our lives to behave in certain ways. When others violate these "shoulds" the typical emotional responses are anger, frustration, and resentment. Rigid, and excessive or unrealistic demands on others will, of course, be violated and result in frequent stressful emotional reactions.

A common perfectionistic belief that people hold goes something like this: "I should excel in everything I do." Behavior is likely to be driven to achieve this unattainable

standard of performance. Failure to meet the standard leads to self-berating thoughts ("I should have tried harder..."), or rigid self-labeling ("I'm a loser..."), or magnifying the importance of the situation ("it's horrible that I did not get an 'A' on the test..."), or jumping to conclusions ("I know I'll fail the class..."). The main problem with perfectionistic beliefs is that they are simply unattainable and therefore always result in failure to one degree or another. Perfectionism is a no-win proposition.

Our relationships with others can also be the affected by excessive self-demands that can be described as should statements. Many women run into problems with excessive should statements regarding their role in the family. Beliefs like "I should always be able to meet all the wants and needs of my family", "I should keep peace and smooth out all conflicts in the family", or "I shouldn't do things just for myself since I would be neglecting my family..." are common sources of misery and stress. Women (and men) with these kinds of beliefs give, give, give; and usually place their own wants and needs way on at the bottom of their priority list. Furthermore there are often "shoulds" regarding the behavior of the other family members such as "If I give my time and energy to them, I should get appreciation, consideration, etc. in return." So often it doesn't work out this way and the woman feels taken for granted and unappreciated. This leads to feelings of anger or resentment, which for many is followed by feelings of guilt due to beliefs like "I shouldn't be angry at the ones I love" or "I should do more for my family...."

Many people are trapped in a web of "shoulds" such as the one just described, although there are many variations with regard to the specifics. If you feel guilt look for "shoulds" or "musts" in your belief system that have been violated. Once discovered these types of beliefs need to be evaluated and questioned with regard to their validity and appropriateness.

Magnification

Magnification refers to thoughts and beliefs that blow events out of proportion, leading us to make mountains of molehills and to cry over spilled milk. Magnification can make small hassles into major traumas and minor embarrassments into devastating humiliations. Some forms of magnification have been referred to as "awfulizing" or "catastrophizing." Catastrophizing is represented by thoughts such as "If I don't get this promotion my life will be ruined...things will be horrible...". This type of thinking is often characterized by certain forms of extreme language, e.g. words like "horrible", "terrible", "devastating", "awful", etc.

Jumping to Conclusions

Drawing negative conclusions in the absence of facts is

another easy way to bring on needless stress. One common method of doing this is to anticipate negative outcomes before an event has happened, as in "I just know I'm going to fail this test..." and "...my party will probably be a flop...." Another method is to read peoples minds, for example "...they think I'm a fool...."

Anticipating negative outcomes and mind reading can even be combined, as in "he won't like me if I say that...." It is quite likely that Jack was jumping to conclusions when felt he had been cheated on the exam.

Overgeneralization

This type of thinking involves drawing general conclusions based on isolated or limited instances of some negative event. It is represented by words such as "always", and "never." "I always screw up...I'm never successful" or "..this always happens to me...I never get a break" are examples of overgeneralization. Events are often selected that conform to the individual's negative, biased viewpoint, while those events that contradict the viewpoint are ignored.

Black/White Thinking

With this type of thinking things are put into yes/no, good/bad, right/wrong, and either/or categories. Gray areas are eliminated as the world is viewed in terms of absolutes and extremes. In many instances persons with perfectionistic demands on themselves (or others) think this way -- if perfection is not achieved they see themselves as no good or as failures. This type of thinking is often an extreme form of overgeneralization.

Personalization

In this case one sees himself as responsible for events that he has no, or very little, control over. Taking responsibility for the misfortunes or emotional reactions of others are common examples, as when one feels guilty that another is upset or feels a duty to make things "right" for them. Some people also assume responsibility and blame themselves whenever there is any sort of conflict or confrontation with another person. Should statements are often present, e.g. "I should have done more...."

False Comparisons

We often get into the game of rating ourselves against others with respect to personal attributes, performance, etc. The comparisons we make tend to be very biased and selective, however, and we often stack the deck against ourselves. Most of us can see our shortcomings more clearly than our strengths, and indeed we can even create shortcomings where they don't exist.

Dealing With Maladaptive Thoughts and Beliefs

As previously mentioned becoming more aware of the kinds of thoughts and beliefs that bring on your stressful emotional and behavioral reactions is an important step in controlling them. Once we are aware of them they can then be evaluated with respect to the logic and assumptions that underlie them. The evaluation of these thoughts and beliefs can include questions such as: Where is the evidence to support this idea? Is the idea logical?

Am I overgeneralizing, overreacting, or otherwise distorting the situation? Are the premises underlying this idea sound or rational?

When thoughts and beliefs are found to be illogical, unrealistic, distorted or in other ways faulty and stress inducing they can then be disputed and challenged. Alternative ways of thinking about the situation that are more adaptive and less stressful can be developed and used to replace the those that have aggravated stress reactions.

A worksheet has been provided with this unit to assist you in putting the process described above into action. An example of a partially completed worksheet is also provided. The idea behind the worksheet is to catch your stress inducing thoughts and beliefs as they affect you during your day to day life. Use your emotional reactions as a cue to go through the steps on the worksheet. The steps for using the worksheet are described below (refer to the example as you go through these steps).

1. When you experience emotions such as anger, guilt, frustration, etc. use this as a cue to use the worksheet. First write down the emotion in the first column.
2. Describe the situation you are in.
3. Write down any thoughts or beliefs that appear to be bringing on your emotional reaction. This can be a difficult step, especially at first. One way to do this is to "catch" thoughts as they occur during the situation. Another is to examine your reaction to the situation and identify the kinds of beliefs that would account for your emotional reactions.
4. Evaluate and challenge the thoughts and beliefs. Identify any distortions, excessive "shoulds", overgeneralizations, faulty logic, etc.
5. Describe the situation to yourself in less stressful ways. Develop alternative ways to view the situation that are more rational and adaptive.

It is strongly urged that you use the worksheet regularly (daily) for a number of weeks. Writing down your stressful thinking patterns, challenging them, and developing alternative ways of thinking is <u>much</u> <u>more</u> effective than doing the process "in your head."

At first you are likely to find that in many situations going through the process on the worksheet does not lead you to feel much better. It is much easier to see that a belief is irrational than it is to change it! However, just by doing the

analysis of your thinking patterns you are breaking up the automatic nature of these stress reactions. This is an important first step. Changing long-held thoughts and beliefs is a process that requires time and persistence (just as with learning to stop various muscle tensing habits). Over time you can loosen-up old thinking habits and develop new, more effective perspectives.

LEARNING TO RELAX: PART THREE

The third relaxation tape emphasizes two different aspects of relaxation: muscular relaxation of facial and neck muscles, and relaxation of the blood vessels and autonomic nervous system.

In the first part of the tape tense-release exercises are employed to help you relax the muscles of the face and neck region. The second part of the tape introduces techniques to help you learn to warm your hands. When our hands become warmer during relaxation this indicates that the blood vessels in the hand are relaxing which, in turn, is caused by a relaxation of the ANS. Relaxation of the ANS and blood vessels can potentially improve your ability to prevent or abort headaches that have a vascular mechanism. Some people use hand warming skills at the first sign of a migraine and can successfully prevent the headache from developing. The techniques for hand warming used on the tape include phrases suggesting warmth, as well as imagery associated with warmth (warm water, sunshine, and the warmth of a fire).

The length of the tape is shorter than the previous relaxation exercises. At the end of the taped instructions, however, you are asked to continue practicing the relaxation for several more minutes on your own. This allows you to make use of techniques that you find particularly useful or to work on areas of relaxation that you want to improve. It is also intended to provide time for you to work with relaxation independently, without the guidance provided by taped instructions.

Relaxing the Autonomic Nervous System

Warming of the hands during your practice sessions requires relaxation of the autonomic nervous system as mentioned above. When the blood vessels of the hand relax, there are changes in blood vessels and other systems controlled by the ANS occurring throughout the body. Research indicates that this can be disruptive to the processes that underlie vascular headaches and therefore it can be a useful skill for headache sufferers.

Many of you have probably found some degree of hand warming has occurred when you have used the first two relaxation exercises in this program. If so, you are already achieving a very complete state of relaxation. The techniques in the present unit can be helpful to you in enhancing your hand warming skill further. On the other hand, many of you have not experienced warming in your hands during relaxation. The techniques presented on this third tape are designed to help you develop the skills to warm your hands through relaxation. This type of relaxation can be much more subtle and difficult to attain than relaxation involving only the muscles. People often have difficulty warming their hands because they try to hard to force the response to occur (sometimes the hands will even cool). A very passive attitude is important in relaxing the ANS -- you must simply

allow the warming to occur, don't try to make it happen.

In some instances warming of the hands may be occurring but the person involved is not able to sense the change in temperature. Slight increases in hand temperature are meaningful, so be alert to even minor changes in the warmth of your hands. Other changes in the feelings in the forearm and hand can also signal that the blood vessels are relaxing. These include tingling, a slight pulsating feeling, or a feeling that your hands are expanding. Keep in mind that the sensations you experience may be very slight.

What if you practice the hand warming a number of times without apparent success? First of all, be patient. Don't be perfectionistic and demand immediate success. With regular practice it is likely that you will develop hand warming skills. It is also important to keep in mind that although hand warming skills are desirable, they are not essential for successfully using relaxation to control headaches.

Diaphragmatic or Abdominal Breathing

When we are tense or under stress our breathing becomes more shallow and rapid. Furthermore, many people are "backward breathers" -- they tighten and pull in their abdomen when inhaling. This is an inefficient and often tension producing pattern of breathing. To see if you breath in this way, try this: place one hand firmly over your abdomen and then take a deep breath. If your abdomen goes in while you are breathing in then you are breathing "backwards" (thoracic or chest breathing).

Diaphragmatic or abdominal breathing is a pattern of breathing that is more efficient than thoracic breathing. When breathing in this fashion the abdomen expands while you breath in. It allows you to pull air more deeply into the lungs when inhaling and reduce the work involved with breathing.

If abdominal breathing is something new to you it may be difficult initially since it is the opposite of your normal breathing pattern in certain ways. A good way to practice abdominal breathing is to lay flat with one hand resting on your abdomen. Practice breathing in a way that your abdomen expands as you inhale and "deflates" as you exhale. This may be tricky at first, but will come naturally after you have done it a number of times.

Abdominal breathing is useful as a relaxation technique that can be practiced for a few minutes at a time. Work with it during the day as a short "relaxation break." Don't breath too deeply -- take natural breaths and try to establish a smooth and easy breathing rhythm. Your exhalation should last approximately twice as long as your inhalation. You may wish to count slowly to three as you inhale and count to six as you exhale. However, feel free to make adjustments in the length of inhalations and exhalations so that the breathing rhythm is comfortable to you. As you exhale think to yourself phrases like "I am relaxed" or "letting go."

Abdominal breathing can be helpful in fostering relaxation of the autonomic nervous system including the warming of the hands. Use the abdominal pattern when consciously breathing during the practice of relaxation with the tapes. Phrases and images for warming your hands can be particularly effective when used in conjunction with abdominal breathing. Focus on the warming process as you exhale.

HEADACHE SELF-MANAGEMENT PROGRAM

* UNIT FOUR *

John Kesselring, M.A.

STRESS MANAGEMENT REVISITED

Coping Skills

Approaches to coping with stress can be divided into two basic types: emotion focussed and problem focussed. Emotion focussed coping is directed toward one's internal stress responses, while problem focussed coping is directed toward the outside environment. To effectively manage stress both types of coping skills are important.

Emotion Focussed Coping Skills

These types of skills are intended to reduce the emotional and physiological impact of stress on a person. When used as a stress management technique, relaxation represents this type of stress coping skill. It is useful to reduce the physiological reactions that we show when under stress.

The identification and change of stress inducing thoughts and beliefs can also be a very useful emotion focussed stress management skill. These cognitive techniques, as they are often called, are employed to reduce needless, excessive, or otherwise maladaptive emotional reactions. They help us change our perception of a situation to a perspective that is less stress inducing.

Emotion focussed stress reduction techniques are especially useful since they can be employed regardless of the external source of stress. When used to control our bodily response to stress and they reduce the physical consequences of stress such as headaches, stomach problems, and so forth. Excessive emotional reactions can interfere with our ability to actively cope with the stressful situations that confront us. Reducing the emotional response to stress allows one deal with the demands of the situation in a reasonable and rational manner.

Problem Focussed Coping Skills

These types of skills are those that are employed to actually deal with the environmental circumstances or stressors that confront us. Stress arises when we do not effectively cope with the world around us -- when we can't make decisions or act on them; when we can't express our wants, needs, or opinions; when we can't resolve conflicts; when we can't organize our time and efforts efficiently; and so forth.

Although certain situations are inherently difficult, stressful, and without easy solutions, there are many instances when our lack of appropriate coping responses is the reason a given situation is stressful. We may employ coping strategies that are ineffective or increase stress in the long run. Avoidance is one such strategy that many people use too frequently, and suffer increased stress as a result. It certainly has its uses, but in many instances it is impossible or undesirable to truly avoid the problems in our lives. Avoidance of problems

often causes them to gradually get worse. For example, a marital problem that is avoided can gradually divide the spouses further and further apart -- what was once a relatively small problem can grow to the point of destroying the relationship.

Improving Your Coping Skills

The concept of stress is a very broad one and the sources of stress or problems in coping with stressors varies a great deal from one person to another. Therefore, in this headache self-management program techniques cannot be provided to deal with all of the specific problems of each individual participant. The techniques and procedures incorporated in the program, such as relaxation training and changing dysfunctional thoughts and beliefs, are those with more general applicability to a wide variety of stressful circumstances. In addition to being wide ranging in application these are techniques that are time tested and have proven to be very powerful in reducing stress.

As a starting point to improve your coping skills use the relaxation and cognitive techniques on an ongoing basis to control your emotional reactions to the stressful events and hassles in your life. These approaches are ones that virtually anyone can benefit from. However, it should again be emphasized that these techniques must be practiced regularly to be of any significant value.

Being in control of emotional reactions also lays the foundation for constructive problem focussed coping. The relaxation skills help you get in touch with stress and emotional reactions and the circumstances that evoke them. The cognitive techniques help you change your perspective on a situation in a way that better prepares you to handle it, and can directly lead to improved problem focussed coping.

Improving problem focussed coping skills involves making specific changes in the way one interacts with the world around them. This may require becoming more assertive (e.g. learning to say "no"), better organized, less dependent on others, or in some other way more effective in dealing with various life circumstances. As mentioned above, the specific problems and specific solutions will vary a great deal among individuals. However, using the awareness and skills that you have been developing within this program, there are approaches that you can take to improve you problem focussed coping skills.

Circumstances that are repeatedly stressful for you are usually good areas to target for change. Think about alternative ways of dealing with the problem situations and weigh the pros and cons of each option. Do this at a time when you are not directly involved with the stressful circumstances since this will help you be more objective about it (this is largely because interfering emotional reactions are not present). After selecting appropriate options it is time to act, that is, time to begin implementing the changes you want to make.

Some points about changing ones behavior need to be made. The first is that small, concrete changes lead to success. Focus on a limited number of specific changes you wish to make. Many people try to change too many things, too fast, or set unrealistically high goals for themselves when they start undertakings such as stress management. This tends to be overwhelming and typically results in failure and a return to old habits. Be patient and persistent. Be willing to take some risks -- this is usually a must -- but don't dive into something that you are obviously not prepared for. To succeed you must also be ready to accept some failure, since setbacks virtually always occur.

Other Psychological Factors

Depression and Headaches

Depression, like stress, is a very broad concept. It is used to describe emotional and behavioral problems that show certain characteristics. Depression is often associated with a low or sad mood, although this feature is not always present in a depressed person. Other symptoms of depression include: poor or excessive sleep, increased or decreased appetite, feeling unmotivated and apathetic, decreased sex drive, a low energy level, and in some instances feeling chronically tense and anxious. The depressed person often will have a negative view of himself, the world, and the future. Depression is commonly a reaction to the long term inability to cope with the stressors in a person's life, although for some individuals the causes may be biological.

Depression can affect the biochemistry of the nervous system. Persons who are depressed have been found to have abnormalities in certain substances such as serotonin and the endorphins. These abnormalities are similar to those that have been found in certain headache sufferers. People who are depressed also will frequently complain of headaches. These chemical abnormalities may represent a physiological basis for this increased headache tendency. Another set of mechanisms that could cause headaches in depressed persons are those associated with stress, such as ANS arousal and muscle tension.

Overcoming depression may require professional help if it is severe or persistent. Psychological counseling and antidepressant medications are two common forms of treatment for depression. Stress management techniques can be an important aspect of overcoming depression. In fact, the cognitive techniques are commonly used by psychologists because the thoughts and beliefs of a depressed person tend to be distorted in a very negative fashion. It is often useful for the depressed person to increase his or her activity level, including increased physical exercise.

Reward and Avoidance

When a person has a chronic pain condition, be it headache or some other type of pain, a problem that can arise is that the

individual will develop learned pain behaviors. In other words, complaints of pain can be strengthened by rewarding consequences.

As a result much of the pain becomes psychological rather than physiological. Examples of rewarding consequences include the avoidance of certain tasks or responsibilities, attention and sympathy from others, and pain medications such as narcotics. Learned pain behaviors are most likely to occur in conditions where pain is constant rather than episodic.

This type of learning appears to occur more often in pain syndromes other than headache, such as disabling low back pain. Many, if not most, people with headaches seem to forge on with their activities in spite of the pain. However, learned pain behaviors do show up in some individuals with headaches. For example, Joan is a woman with frequent headaches who tends to have trouble saying "no" to others -- she feels guilty and selfish when she puts her own needs above the needs of others. However, if Joan has a bad headache she finds it acceptable to herself to say "no, I have a bad headache..." when requests are made of her. The avoidance of guilt may be a rewarding consequence for having a headache in these instances. Those around her may also have learned to make fewer demands on her when she has a bad headache -- another rewarding consequence.

OTHER TRIGGERS

Dietary Headache Triggers

A list of foods that have been found to trigger headaches in certain individuals is provided at the end of the unit. Those foods preceded by an asterisk are those most likely to cause problems. Dietary triggers act by initiating vascular headache mechanisms and are most likely to be present in persons with clear-cut migraine headaches (with the exception of missing meals which can be trouble for any headache sufferer). It is most likely that specific foods do not cause your headaches, but the food list is provided so that you can assess the role of this group of potential triggers in your headache condition.

Blood Sugar

As discussed in the second unit the brain is very sensitive to the amount of sugar it receives in the bloodstream. Decreased levels of blood sugar can result in profound changes in blood vessels and trigger vascular headache mechanisms. Going for long periods without eating is the most common dietary trigger of headaches. You should strive for stable and regular eating patterns if you haven't done so already.

Another problem may be the consumption of sugary snacks. For certain people the ingestion of sugar can lead to a rapid rise in blood sugar, which is followed by a dramatic decrease in sugar levels (and a subsequent headache).

Vasoactive Chemicals

Certain foods contain substances that affect the blood vessels (vasoactive chemicals). Many of these are chemicals known as amines that are naturally present in certain foods. Tyramine is the amine that has been most frequently implicated as a headache trigger.

Other substances such as table salt (sodium chloride) and the flavor enhancer MSG (monosodium glutamate) also appear to trigger headaches in certain individuals.

To identify dietary triggers of headache one must carefully observe the relationship between what he or she eats and the occurrence of headaches. When you eat high-risk foods makes note of this and whether or not a headache occurred. It may take time to establish that a food is a trigger factor. Foods that are suspected as triggers can be eliminated from the diet.

Please keep in mind that specific foods are not triggers for the majority of headache sufferers. Less than 30% of those with vascular headache patterns are found to have headaches that are triggered by specific foods.

Food Allergies

Provoking an allergic reaction is another way that foods can trigger headaches, although this appears to occur in only a small number of headache sufferers.

Jaw Problems

Certain imbalances or misalignments in the bite can result in a disorder known as temporomandibular joint (TMJ) syndrome. The TMJ is the joint where the jaw hinges to the skull, located in front of the ears. TMJ syndrome can cause headaches and other symptoms. Much of the pain caused by this problem is believed to result from spasm of the muscles that control the movements of the jaw. In severe cases damage to the joint itself can be a source of pain.

In TMJ syndrome a person's teeth typically do not mesh together properly when the jaw is closed. In some way the muscles of the jaw contract and strain to compensate for this improper fit of the teeth. Spasm and pain result. Persons with TMJ problems frequently are found to grind their teeth at night (bruxism), although they may be unaware of this. Stress tends to be a major aggravating factor in TMJ syndrome and bruxism.

Symptoms of TMJ problems include: popping or clicking in the jaw while chewing; ringing, pressure, or buzzing in the ears; soreness in the chewing muscles, teeth, and jaw joints; limitations in the movement of the jaw (e.g. difficult to open it wide); clenching or grinding of the teeth; and headaches. A dentist can also find signs of wear on the teeth if bruxism is present.

Relaxation training and stress management can be important in the control of TMJ syndrome. In many instances dental treatments are also necessary, especially when a person grinds their teeth when asleep. Dental treatments focus on correcting the bite by grinding down high points on the teeth and using special mouthpieces or bite splints that are worn by the patient.

The use of mouthpieces can be very helpful for the person who grinds their teeth while sleeping.

Using the Trigger Checklist

In addition to the dietary trigger list, a checklist of the various trigger factors that have been covered in this program is included at the end of this unit. This checklist is provided to assist you in identifying factors that may be aggravating your headache condition. You should carefully review the list occasionally and note those factors that you suspect may be triggers. From this analysis you can target specific types of triggers to work on or keep track of. Don't attempt to deal with a large number of triggers at once. It is best to attempt to eliminate or rule out only a few triggers at a time (or even only one), and then systematically move on to other suspected triggers. This is likely to be an ongoing process that will gradually improve the control you have over your headaches.

RELAXATION: PART FOUR

You have been practicing relaxation for a number of weeks with the emphasis on the acquisition of basic relaxation skills. Although the further refinement of relaxation skills is still important, in the current unit the application of relaxation to your daily life is also stressed.

Breathing and Relaxation

In the past unit, diaphragmatic or abdominal breathing was introduced. The use of breathing exercises can be an excellent way of relaxing and is especially useful in the application of relaxation to one's day to day life. Diaphragmatic breathing is helpful in relaxing the autonomic nervous system which is necessary for hand warming. The relaxation exercise contained on the tape for this unit makes use of breathing exercises and attention to breathing as a means of achieving relaxation.

Do not try to force an abnormal breathing pace or style during relaxation (just as you don't try to force relaxation to occur). Allow your breathing to be smooth and effortless.

Practice Independently

Try to practice relaxation during the day for at least 5 minutes on your own. You can do this during your lunch hour or other breaks in the day.

Initially use diaphragmatic breathing in conjunction with relaxing words and phrases. When you do breathing exercises your exhalation phases should be about twice as long as your inhalations. More important, however, is that your breathing be easy and natural. You may wish to simply observe your breathing and think about relaxation with each exhalation.

Eventually you can develop your own personal relaxation exercises -- incorporating the techniques that work best for you.

Some people will want to focus more on muscular relaxation, while others will want to use or work on hand warming skills.

Scan and Release Exercises

Throughout the day take moments to scan your body for signs of tension, then take a smooth full breath and as you exhale thinks about letting go of that tension. Do this as often as you can during the day so that it becomes a habit. These brief relaxation exercises will help you keep tension in check during the day, and are a way of integrating relaxation into your life.

Brief relaxation exercises are also useful in coping with stressful situations. When you feel yourself experiencing stressful reactions use this approach to help slow yourself down.

Small colored adhesive dots have been provided in your material for this unit for you to use as reminders to practice your brief scan and release exercises. Place these dots around in your environment in spots where you will see them occasionally, but not continually. Places where people stick them

include: watches and clocks, mirrors, doors, refrigerators, desk drawers, and walls.

Where Next?

For the next two weeks work with the methods presented in this unit: the taped breathing exercise, independent relaxation during the day (for about 5 minutes - longer if you wish), and the Scan and Release exercise. After completing Unit Four you will want to continue with the use and application of relaxation.

Practice with any of the taped exercises. Make use of the tapes at least occasionally, and on a daily basis if you wish. Also practice relaxation frequently on an independent basis without the tapes. You should strive to make use of relaxation to some extent every day. Also continue to use the Scan and Release exercise. If you continue to practice relaxation regularly this will lead gradually to further improvements and refinements in your ability to relax your body. Good Luck!

DIETARY TRIGGERS

* Missed meals (probably the most common dietary trigger)

Foods containing tyramine or other vasoactive substances

* Chocolate

* Ripened or strong cheeses (e.g. cheddar)

* Oranges (juice from concentrate is O.K.)

* Nuts, peanut butter

* Aged, cured, processed, fermented, pickled, or marinated foods (e.g. sour cream, wine vinegar, dried meat or fish)

* Alcoholic beverages (especially red wines, sherry, beer)

Monosodium Glutamate or "MSG" (a flavor enhancer found in oriental dishes, seasoned salts, and many convenience foods such as frozen dinners)

Table salt (excessive salt consumption)

Broad bean pods (e.g. lima, navy, fava)

Pork, certain seafoods

Bananas, plums, figs, raisins, pineapple, raspberries, avocados, and various citrus fruits

Licorice

Fried foods

Hot fresh bread, yeast extracts (active yeast)

Onions, olives

Nitrates and nitrites (added to meats as a preservative and to bring out color, especially in processed meats such as hot dogs, bologna, corned beef, salami, etc.)

Tartrazine (this is a coloring agent, known also as Yellow Dye #5, that is often used in food and even medicines--including some brands of pain relievers!)

Food Allergies

Dairy products, eggs, wheat

TRIGGER CHECKLIST

The following list can be used to help you identify factors that may aggravate your headaches. Examine the list of triggers and check off any that might be a problem for you. This will help you to focus attention on the areas you feel are a problem.

Potential
problem?

___Specific foods
___Irregular or infrequent meals
___Irregular sleep (too little or too much)
___Fatigue

___Caffeine consumption
___Caffeine rebound (withdrawal effects)
___Alcohol
___Analgesic rebound
___Ergotamine rebound
___Excessive sinus medications (rebound)
___Other medications (from use or rebound)

___Existing pain or irritation
___Clenching or grinding teeth while asleep
___TMJ syndrome
___Bracing muscles
___Poor posture
___Poor lighting or glaring light, eyestrain
___Other environmental factors (e.g. stuffy rooms)

___Highly stressful or emotional events
___Daily stress (e.g. hassles, working long hours)
___Letdown after a stressful period
___Depression
___Avoiding activities or responsibilities
___Attention from others, getting medications

Women:
___Menstrual cycle
___Birth control pills
___Other hormonal factors

INSTRUCTIONS FOR UNIT FOUR

1) Read Unit Four of the manual and listen to the taped introduction to the unit.

2) Practice with the relaxation tape on a daily basis. Practice relaxation independently for a few minutes during the day. Use the scan and release exercise.

3) Continue to record your headaches and relaxation practice. On the record sheet there is also a place to indicate the extent to which you experienced warming of the hands during relaxation.

4) Continue to work with the stress management techniques, as well as the identification, and control or elimination of other triggers.

5) In two weeks return your data sheets and pick up a new set of recording sheets. I am requesting that you continue to record your headaches for 4 weeks following the completion of Unit Four (which lasts two weeks).

APPENDIX C

Transcripts of Relaxation Tapes

UNIT ONE

Tense-Release Relaxation

First, begin by getting in a comfortable position on the bed or chair. Make sure your entire body is well supported. During this relaxation exercise you will be directed to focus on various muscle groups throughout your body -- alternately tensing, then relaxing those areas. When asked to tense a specific group of muscles try to keep the other muscles of your body relaxed. It is common for people to unconsciously clench their jaw or tighten other muscles even though they are focusing on a different body area.

Set aside any worries or concerns that you might have for the duration of this practice session. This is your time for relaxation. If you find your mind wanders away from the relaxation exercise, gently bring your attention back to your body and the directions being provided to you.

Let's start by taking a moderately full breath. Hold it momentarily and notice the tension it creates, and then slowly and gently exhale, allowing yourself to sink down very gently and relaxed into the chair or bed. Once again, a moderately full breath, not too fast -- hold it -- and then gently exhale, allowing yourself to sink down heavy, loose and relaxed.

Now bring the focus of your attention to your right forearm and hand, from your elbow to your fingertips. Become aware of this area and the sensations in the muscles. What do these muscles feel like? Now make a tight fist with your right hand. Create tension in your fingers, hand, and forearm. Hold that tension and study it. What does it feel like? And now release. Allow all that tension and tightness to flow out -- allowing your right forearm and hand to become very heavy, loose, and relaxed. Try to be aware of any sensations in this area that occur as it becomes relaxed. Describe these to yourself.

Move your attention to your right upper arm, the regions of the biceps and triceps from your shoulder to your elbow. Tighten these muscles and push your arm downward toward the bed or chair, creating more tension. Keep the rest of your body relaxed. Study the tension. And now release. Allow that tension to flow out. Allow that upper arm to become loose, limp and relaxed. Feel the difference. Let go of any remaining tension in your right arm. Your entire right arm becomes heavy and relaxed.

Now bring your attention to your left forearm and hand. Become aware of this area. Notice the sensations in this area. Try to describe them to yourself. Now with your left hand make a tight fist creating tension in

your fingers, hand, and forearm. The rest of your body is relaxed. Study these sensations, hold that tension. Now release, letting go of any tension or tightness. Allowing the forearm and hand to become very relaxed, loose, and heavy. Feel the difference. Describe to yourself those sensations that are now present in your left forearm and hand as you allow it to become more and more relaxed.

Move your awareness to the region of your upper left arm between the shoulders and elbows. Become aware of the biceps and triceps muscles. Think about how these areas feel. Focus on the sensations present. Now tense your left upper arm and push it downward against the bed or chair creating more tension. Hold that tension, study that tension, leaving the rest of your body relaxed. Now release the tension. Allow that area to relax. Allow it to become loose, limp, very comfortable. Feel the tension flow out of that area. Notice the difference, notice the sensations present there now as you let go of the tension. Allow your entire left arm to become very heavy, loose and limp. Allow both arms to continue to become heavy and limp as you now bring your attention to your forehead.

Become aware of your forehead. Become aware of any sensations of tension or tightness there. This is an area that frequently holds tension. Now tense this

muscle group by raising your eyebrows as far as possible. Hold the tension, study the tension. And let go. Release. Relax that region. Allow your forehead to become smooth and relaxed. Study the difference. Be aware of the sensations present there. Let's tense this region again but this time pull your eyebrows together wrinkling your forehead, frowning, creating a great deal of tension. Study the tension, hold that tension. And now release. Let go. Describe the sensations to yourself as you allow that area to become loose and relaxed. Just continue to let go. Let go of any tension there.

From time to time, you may find your attention level wanders during the tape. You may find that thoughts intrude. When this occurs, simply bring your attention back to your body and the directions provided on the tape.

Now bring your attention down to the region of your eyes. Become aware of this area of your body. Study the sensations. The whole central part of your face. Your cheeks, your eyes, your nose. Now at the same time, squeeze your eyes together very tightly and wrinkle up your nose, creating tension in the whole central part of your face. Feel that tension, study that tension. Now let go, release. Allow your face to relax. Allow your eyes to become quiet and comfortable. Muscles around

your cheeks and nose become loose and relaxed. Try to notice the difference, try to notice and describe those feelings to yourself. Put labels on them. Your forehead is smooth and relaxed, eyes quiet, comfortable. Now bring your attention down to the region of your jaw and lower face around your mouth, cheeks, your chin. Now tense this area by clenching your teeth together and pulling the corners of your mouth back. Feel the tension that creates. Very tight. Now release and let go. Allow your jaw to go slack. Allow the muscles in the region of your mouth and lower face to become very loose and limp. Jaw loose and limp. Feel the difference, feel the relaxation as you let go. Your whole facial region nice and relaxed, loose and limp.

Let's tense the area of your jaw and lower face once again. Clench your teeth together, pull back the corners of your mouth, and make sure your forehead and eyes are relaxed. Release those areas. Now release the jaw, the mouth. Let go entirely. Jaw loose and limp. Letting go. Notice how it feels. Forehead smooth, eyes quiet, your jaw loose and limp.

Continue to allow the muscles of your face and scalp to relax, but move your attention down to the region of your neck. Become aware of this area, another area that we frequently hold tension. In a moment I will ask you to isometrically tense this area by pulling your chin

downward toward your chest while at the same time preventing it from actually touching your chest by using the muscles in the back of your neck. In other words, the front and back muscles of your neck will be pulling against each other. Now, tense this area leaning forward slightly with your chin. You may feel it begin to tremble or shake slightly. Hold that tension. And release, relax, let go. Allow that area to relax. Notice the difference. Feel the relaxation.

Once again I am going to ask you to tense the muscles of your neck but this time I want you to push backwards, push downward with your head against the bed or chair. Do this now creating tension, very tight. Feel that tension, hold that tension, study it. And release, letting go. Feel the difference as you let go of any tension and any tightness in the region of your neck. Forehead smooth, eyes quiet, jaw loose and limp, neck soft and relaxed, arms heavy and limp.

Now bring your area of focus to the region of your shoulders, upper back and upper chest. In a moment I am going to ask you to tense this area by first taking a full breath, holding it and at the same time raising your shoulders as if you were trying to touch your ears. Okay, full breath, hold it, raising the shoulders, feel the tension, study it. And release, letting go. Let the shoulders sink down heavy and relaxed, letting any

tension flow out of your chest, your upper back or the region of your shoulders.

We're going to tense this area once again. This time I'd like you to take a full breath. Instead of raising your shoulders, pull them back as if you were trying to touch your shoulder blades together. Do this now. Full breath, shoulders back, try to touch those shoulder blades, hold that tension, study that tension. Release, letting go. Let the tension flow out. Let that area of your body sink down, very heavy, loose and relaxed. Keep in mind that you should only tense those areas that we are focusing on. Keep the rest of your body relaxed. This will become easier to do as you have more practice with relaxation.

Now move the focus of your awareness to the region of your abdomen. I want you to study the sensations there, become aware of the feelings and the muscles of this region. In a moment I am going to ask you to tense it, making it hard. Essentially you try to pull and push at the same time. Okay, now tense the muscles of your abdomen. Make that area hard. Push out, pull in at the same time isometrically tensing those muscles. Hold that tension, study that tension. And release, allow it to flow out, allow the area to become loose and relaxed. Feel the difference.

Move your attention down to the region of your right

leg, hips, thighs, calves. Become aware of these areas. In a moment I am going to ask you to tense your right leg by pointing your toe upward towards your head and tightening the muscles of your entire leg. Okay, let's do that now. Point the toe upward, tighten the hips, buttocks, thighs, calves. Feel the tension. Keep the rest of your body relaxed, left leg relaxed, while you hold the tension in your right leg. And now release, let go. Allow your right let to sink down heavy, loose, relaxed. Feel the difference, feel the sensations as you allow your leg to become increasingly heavy, loose and relaxed, very limp, very comfortable.

Now bring the focus of your attention down to your right foot. Become aware of the sensations in this region of your body. In a moment I'll have you tense your right foot and lower leg by turning the foot inward, and curling the toes. Do that now. Feel the tension, feel the tightness. And release, let go. Allow all that tension to flow out, allow your foot and lower leg to become very relaxed. The entire right leg is very loose, limp and relaxed.

Continue to allow your entire right leg and foot to become very loose and relaxed, very limp and very heavy but now bring your attention over to your left leg. Become aware of your left hip, thigh, calf. Make mental contact with this region of your body. I'd like you to

tense your left leg in the same way you did with your right by pointing your foot upwards toward your head. Do this now. Hold that tension. Make sure the rest of your body is relaxed. Hold the tension. Now release, let go. Allow that left leg to become very heavy and relaxed. Allow it to become very loose and limp. Feel the difference. Notice the sensations. Left leg very heavy, loose and limp.

Now move your attention down to your left foot. Become aware of the sensations there. In a moment, we will tense the left foot in the same way as the right, by turning the foot inward and curling the toes. Do this now. Feel the sensations of tightness and tension. And now release, let go. Let the foot go limp, relaxed, let all the tension flow out. The entire left leg and foot heavy, loose and limp, very relaxed.

Let your whole body be very loose and relaxed and enjoy these pleasant sensations. Forehead, smooth and relaxed; eyes, quiet and comfortable; jaw, loose and limp. Your neck continues to become soft and relaxed, shoulders sinking down. Let a feeling of heaviness and limpness flow down to your hands and fingers. Let that same feeling of relaxation flow down to your chest and back, down into your abdomen and lower back. Let that feeling of relaxation flow down into your hips, thighs, down into your calves and feet. Your entire body very

relaxed, very comfortable.

This concludes the relaxation practice session. If you desire, you may continue to remain in this relaxed state for a few more minutes. As you go about your daily activities, try to be aware of muscular tension throughout your body. If you do find certain areas beginning to tense up take a moment to try and relax and release that tension from those areas. At first it may be difficult for you to release the tension from certain areas of your body. However, as you practice more with relaxation and become more proficient with these techniques, your ability to release tension from the muscles in your body will improve.

UNIT TWO

Passive Relaxation

Begin by getting in a comfortable position. Loosen any tight clothing and make sure your body is well supported. Set aside any concerns of the day and try to bring your attention away from the outside world. Focus on the instructions on this side of the tape as well as sensations and feelings you are experiencing in your body and your mind.

Lets start by taking a smooth, gentle full breath. Hold it. And gently release, letting go of any tension or tightness in your body. [pause] Once again, take a nice full breath. Hold it. Gently exhale and let yourself float down very relaxed, very comfortable, letting go. Throughout this relaxation session, keep in mind that relaxation is a passive activity. It is not something you can force to happen, not something you can make happen. It is something that you must allow to happen. Relaxation is a process of releasing tension, of letting go.

Bring the focus of your awareness in a very passive and gentle way to your right arm and hand. Become aware of any feelings or sensations in your right arm and hand. Try to describe them to yourself and put labels on them. What does that arm feel like? What does that hand feel

like? As you maintain this passive awareness of your right arm and hand, think to yourself the following phrases. My right arm is heavy, my right arm is heavy and limp. Just allow your right arm to become very heavy, limp, loose and relaxed. [pause] Again, while maintaining that passive concentration on your right arm and hand, think to yourself the following phrases: "My right arm is heavy, my right arm is heavy and warm. Warmth flows into my hand." [pause] Just allow these sensations to occur, allow the relaxation to occur. Let your right arm sink down, very heavy, loose and relaxed. [pause] Continue to allow your right arm to relax and shift the focus of attention over to your left arm and hand.

Become aware of any sensations, any feelings that are present in your left arm and hand. Compare the sensations in your left arm and hand with those in your right arm and hand. Notice any differences. [pause] Now as you maintain the awareness of your left arm and hand, think to yourself "My left arm is heavy, my left arm is heavy and limp." Just let your left arm become very heavy, loose and relaxed. Allow it to sink down comfortable. [pause] Again, keep it in mind that this should not be anything that you try to force to occur. Let the sensations happen. Maintain a passive concentration on your left arm and hand, think to

yourself the phrases "My left arm is heavy, my left arm is heavy and warm. Warmth flows into my hand." [pause] Allow that feeling of heaviness and warmth to flow down your left arm, into your hand, all the way to your fingertips.

Continue to allow both arms to become heavier and more relaxed and more comfortable, but bring the focus of your attention down to your right leg. Become aware of your entire right leg all the way from your hip to your toes. Notice any sensations present in your right leg. [pause] As you maintain this passive contact with your right leg, think to yourself the phrases "My right leg is heavy, my right leg is heavy and limp." [pause] Allow a wave of relaxation, a wave of heaviness, a wave of letting go flow down your entire right leg all the way to your toes. [pause] Just let that entire right leg sink down, more heavy, more and more relaxed.

As your right leg continues to become more and more relaxed, shift your attention to your left leg. Notice the sensations present there. [pause] As you maintain this awareness of your left leg, think to yourself the phrases "My left leg is heavy, my left leg is heavy and limp." [pause] Allow any tension or tightness to flow out of your left leg. Let it sink down , loose, limp and relaxed.

During this practice session you may find that your

mind wanders or that unwanted thoughts intrude from time to time. This is a common occurrence during passive relaxation exercises. If you notice is happening just bring your attention gently back to the feelings and sensations you are experiencing as well as the instructions provided on the tape.

Continue to allow both legs to become more and more relaxed. Continue to allow any tightness or tension that remains in them to gently flow out, simply dissipate.

Now bring your attention up to your face, more specifically your forehead. Become aware of this area of your body. Notice any sensations, any signs of tension or tightness in the region of your forehead. Also pay attention to the region around your eyebrows, especially the area between your brows. This is an area where we frequently hold tension. Notice and describe any feelings and sensations to yourself. [pause] As you maintain awareness of your forehead, think to yourself "My forehead is smooth and relaxed." [pause] Allow any tension in your forehead to simply release. Allow any tension around and between your eyebrows to also release. Forehead smooth and relaxed. Keep in mind that you cannot force relaxation to occur. Just try to allow these changes to take place. Just let go. [pause]

Now move the focus of your awareness to the region of your eyes. Notice and tightness or tension you may be

holding around your eyes. Then think to yourself "My eyes are quiet and comfortable." [pause] Allow your eyes to assume a comfortable position and release any tension or tightness that may be around them. [pause]

Let your awareness now float down to the region of your jaw, another area where we frequently hold tension. Become aware of the region in and around your jaw. Look for any signs of tension or tightness. As you maintain this awareness, think to yourself "My jaw is loose and limp. My jaw is loose and limp." [pause] Let your teeth part slightly, let any tension around your mouth and lips release. Let the whole area around your mouth, your jaw become very relaxed, very loose, limp and very comfortable. Forehead is smooth and relaxed, eyes quiet, comfortable, jaw loose and limp. Let go of any tension, tightness in the muscles of your face and scalp. Allow those muscles to become very loose and relaxed. [pause]

Move the focus of your awareness to your neck. Become aware of any sensations, any signs of tension or tightness. As you maintain this passive awareness of your neck, say to yourself the phrase "My neck is soft and relaxed. My neck is soft and relaxed." [pause] Allow the muscles of your neck to become very soft, loose and comfortable. Let go of the tension, let go of the tightness you may be holding in your neck. Continue to allow the tension in your neck to release, to dissipate.

Now bring the focus of your attention to the region of your shoulders. Become aware of this area. Allow your shoulders to sink down very heavy, loose and relaxed. Let any tension in your shoulders, any remaining tension in your neck, just melt away. [pause] Shoulders loose and relaxed, sinking down very heavy, very comfortable. Let the feeling of relaxation, the feeling of letting go sink down into your chest -- releasing the tension in your chest. Continue to let it flow down into your abdomen, releasing any tightness, any tension present there. [pause] Let that feeling of letting go, that feeling of release flow down into your upper back. Allow these muscles to relax -- region of your shoulder blades and all the way down to your lower back. More comfortable, more relaxed. Letting go, releasing any tension present. [pause]

The entire body loose, limp, comfortable, and relaxed. [pause] Once again, smooth, full breath in, hold it momentarily, feel the tension it creates and a gentle smooth exhalation floating down, sinking down, more comfortable, and more and more relaxed. [pause]

You may wish to take a few moments now to focus your attention on any areas you are having trouble relaxing, or any areas of the body where there is significant tension present. Become aware of these areas and focus on letting go of the tension present within them. Let

any remaining tension just melt away, just flow out. [pause]

Allow a wave of relaxation to flow down through the top of your head down through your forehead, eyes, jaw, to your neck, shoulders. Let that wave of relaxation flow down your arms, let that wave of relaxation flow down to your chest and back to your abdomen, lower back, to your hips, thighs, lower calves, all the way to your toes. [pause]

As you go about your day to day activities try to be aware of any tension that you may be holding. Take time throughout the day to pause for a few moments, scanning your body, looking for signs of tension or tightness. Stop to release that tension and tightness with the methods you have been learning with the relaxation.

This concludes the relaxation exercise, although you may wish to continue and work on relaxing areas that have been difficult for you. You may also wish to let go of any remaining mental tension and tightness. Just to allow your mind to relax and drift, and enjoy the relaxation for a while longer. If you feel a bit drowsy after this relaxation session, a short, brisk walk or other form of activity can help revive your alertness.

UNIT THREE

Relaxation for Hand Warming

Begin by getting in a comfortable position. Loosen any tight clothing, make sure your entire body is well supported. Put aside any thoughts, worries and concerns that you might have. Bring your full attention to the tape, to what you are experiencing in your body.

Let's begin with a moderate, full breath, breathing abdominally. Hold it briefly -- and gently exhale, letting yourself settle in very heavy, very relaxed. [pause] Once again, one full breath in, hold it momentarily -- and just exhale, letting go any tension, any tightness you may be holding in your body. [pause]

Now bring the focus of your awareness to the region of your face and scalp, more specifically to the region of your forehead. Become aware of any tension or tightness there. Raise your eyebrows, tightening the forehead muscles, hold that tension momentarily -- and release, letting your forehead become smooth and relaxed. Feel the difference. Now I would like you to tense your forehead by bringing your eyebrows together--furrow your eyebrows. Pull them together, hold that tension, feel that tension -- then release, let go, allow that forehead region to become very relaxed, loose, very comfortable. [pause] Now bring your attention down to the area of

your eyes. Become aware of this area. Now squeeze your eyes together creating tension, shut them very tightly, hold that. Release, let go, allow the eyes to become quiet and comfortable. Allow them to become very relaxed. [pause] Just let them go. Forehead smooth and relaxed, eyes quiet and comfortable.

Move your attention down to the region of your jaw and your mouth. As you maintain this awareness, clench your jaw together and purse your lips together tightly creating tension in the jaw and mouth region. Release, let go. Allow the jaw to become loose and limp, muscles around your mouth very loose and relaxed. In a moment I'll ask you to tighten up your entire face. Do this by bringing together your eyebrows, squeezing your eyes tightly shut, squeezing your mouth and jaw tightly shut and at the same time, pull the corners of your mouth tightly back as if you were exaggerating a smile. Ready, now tighten the entire face, hold that tension, feel that tension. And release, let go. [pause]

Let your face and scalp muscles to continue to relax, continue to become loose and limp and move our attention now to the region of the neck. In a moment, I'll want you to tense your neck by bringing your head forward as if you were going to touch your jaw to your chest, while at the same time you are actually preventing yourself from doing this by tensing the muscles in the back of

your neck. Okay, do that now. Head forward, tensing the muscles of the entire neck, front and back, hold that tension. And let go, release, relax. Allow that neck to become very soft and relaxed. We'll do another exercise for the neck. This time I want you to push your head back against the bed or chair. Do that now creating tension. Push back, hold that tension. Now release, let go, let that neck relax again. Face, forehead, jaw nice and relaxed, neck soft and relaxed.

Now move your awareness down to the region of your shoulders. Become aware of this area. Now tense your shoulders by raising them as if you wanted to touch them to your ears. Hold that tension. And release, let go. Let the shoulders sink down, very heavy and relaxed. [pause]

Once again, take a nice full breath, hold it briefly -- and effortlessly exhale, let that breath go letting any tension or tightness flow out with it. [pause] Let the scalp muscles, neck muscles, facial muscles, shoulder muscles continue to become heavy, loose and relaxed. Let that feeling of relaxation just flow down into your arms as they become heavy and relaxed. That feeling of release and letting go flows down into your chest and abdomen, flows down into your upper back, lower back. Let that feeling of relaxation, that feeling of heaviness, flow down into your hips, legs, all the way to

your toes. Your whole body becoming relaxed and comfortable, just letting go. [pause]

Very gently, now I would like you to bring the focus of your awareness to your right arm and hand. Become aware of the sensations there, aware of the sensations present in the muscles, aware of the sensations where your hand rests on the bed or chair. Just notice these. And as you maintain this mental awareness, think to yourself the phrases "My right arm is heavy and warm, warmth flows into my hand. My right arm is heavy and warm. Warmth flows into my hand." Don't try to force any changes to occur, just think to yourself these phrases and let the changes happen. Just let them happen effortlessly. [pause] Be aware of any changes such as warmth and tingling. Encourage these sensations. Once again, "My right arm is heavy and warm. Warmth flows into my hand." [pause]

Take just a moderately full breath and as you exhale think of a feeling of warmth just flowing into your right arm, into the hand right up to the fingers. As you exhale, with each breath, think of a feeling of warmth flowing into your fingertips. Just allowing those blood vessels to relax. Take a moment now to compare those feelings in your right arm and hand to the feelings in your left arm and hand. Notice any differences.

Gently shift your attention now to your left arm,

your left hand. Become aware of how they feel. Study the sensations in your left arm and hand. Think to yourself now "My left arm is heavy and warm, warmth flows into my hand. My left arm is heavy and warm, warmth flows into my hand." [pause] Just effortlessly allowing these changes to occur. Again as you exhale, imagine that feeling of warmth flowing down into your left hand and all the way into your fingertips. With each exhalation, allow that feeling to occur. [pause]

If your thoughts begin to wander or thoughts intrude, just bring your attention back to the feelings and sensations you are experiencing and the instructions on the tape.

I'd like you to maintain a certain passive awareness with both arms and particularly both hands. At the same time I want you to imagine feelings that you have experienced when you put your hands into warm water. Imagine that right now you have your hands immersed in nice warm water and feel the sensations it creates. [pause]

Another image that some of you may wish to try is that of the warm sunshine. Imagine your body being bathed in the warmth of the sun. In particular, imagine your arms and hands feeling that warmth. Feel that very comfortable, warming sensation. [pause]

Another image that you may wish to use is the warmth

of a fire. Warmth on your hands. Imagine yourself holding your hands in front of a fire, feeling that warmth. Imagine the sensations that you experience from that warmth. [pause]

Continue for a few minutes to use some imagery or use the phrases of warmth and at the same time, pay attention to any changes in the feelings of your arms and hands. You may notice that warming sensation, or other sensations such as a tingling feeling or numbness or a feeling that your hands are expanding. All of these are good signs that you are achieving relaxation of the blood vessels and the autonomic nervous system. You may also wish to work on relaxing any areas of your body that are particularly tense. Use the different techniques that have been provided to in the previous tapes as well as this tape. I would also suggest that you make an effort on a daily basis to practice with relaxation for a few minutes as you're going about your day to day routines. This may mean at or around mealtimes or breaks at work, or whenever you have an extra few minutes to practice using your relaxation skills. And of course try to be aware of any patterns of tensing that you may be experiencing during the day and when you find tension present, take a moment to release it, to let go. This is something that you should try to do regularly as you go about your day to day activities.

Now spend the next few minutes working with relaxation working on your own. Make use of various images for hand warming or the phrases or thoughts that have been presented or use any of the other techniques as mentioned. You may also wish to work on diaphragmatic or abdominal breathing, especially if this is difficult for you.

UNIT FOUR

Relaxation: Breathing Emphasis

Get yourself in a comfortable and well supported position. I'd like you to begin this exercise by scanning your body mentally for signs of tension or tightness in the muscles. Identify those areas that are somewhat tense, somewhat tight. Now breathing diaphragmatically, take a full breath, hold it momentarily and as you gently exhale, relax those areas of your body. Once again, with an awareness of those areas in your body that are especially tight or tense, take a full breath in, hold it, and as you gently exhale, think to yourself, "letting go." This scan and release technique is something that you can use throughout the day as a brief form of relaxation. It can help you keep in check the level of tension in your body. It represents a method for applying relaxation to your daily life.

Again bring the focus of your awareness to your breathing. However, do not try to make any changes in your normal breathing pattern. Just become aware. Pay attention to that cycle of inhaling and exhaling. [pause] Breathe in a normal fashion, don't try to force your breathing or change your breathing in any way. Be aware of the air as it comes in to your body and as it

exits your body. Be aware of any movements or changes in your chest and abdomen, or anywhere in your body that accompany the breathing. You may notice that as you do pay attention to breathing, that it does eventually begin to slow down a bit.

Now just go on breathing naturally and bring the focus down to your legs. Become aware of your feet, your ankles, calves, knees, thighs all the way to your hips. Become aware of your legs and the sensations that you are experiencing in them. Using your breathing as a vehicle, as you maintain that awareness in your legs, think to yourself, "letting go" or some other relaxing word or phrase each time you exhale. Just letting go of any tension in your legs, using your breathing, although not trying to change it in any way. [pause] Letting go of the tension in your legs, each time you exhale, a little more, a little further, with every breath. [pause] The legs become nice and heavy, nice and relaxed.

Now bring the focus of your awareness up to your entire mid-section, your abdomen, chest, back, your entire torso. Become aware of this portion of your body, become aware of how it moves when it changes or when you breathe. Become aware of any signs of tension or tightness present. [pause] And again, as you maintain this passive awareness, think to yourself relaxing phrases or words each time you exhale. Just letting go a

little more each time you breathe out. Don't try to change your breathing, simply be aware of it and try to release a little more tension with each breath. [pause] If your mind wanders simply bring it back to the tape, to your breathing, to the different areas of your body. [pause] Breathing smooth and easy, relaxing the whole mid- section of your body with each breath. [pause]

Now bring the focus of your attention to the region of your shoulders, your neck. Become aware of this region of your body, become aware of any tension, any tightness that may be present there. [pause] And as you maintain this awareness of your neck and shoulders, allow that tension, allow any tightness in that area of your body to be released each time you exhale, using your breathing, a smooth and natural breathing. Just think about relaxing that area of your body each time you exhale. [pause] Keep in mind that you should not try to force any of these changes to occur, just passively observe and allow these changes to happen. [pause] Breathe freely. [pause]

Shift the focus of your awareness to your scalp and facial region. Get in touch with this area of your body. Become aware of any tension or tightness present. Become aware of any sensations that you are experiencing. [pause] With natural, easy breathing, think about relaxing the scalp, relaxing the face, with each

exhalation. Each time you let go of a breath, let go of some of the tightness and tension present in this area of your body. Maintain nice, smooth, effortless breathing, thinking to yourself "letting go" as you exhale, focusing on the region of the face and scalp. [pause]

Now bring the focus of your awareness to your arms and hands. Become aware of this part of your body. become aware of any sensations, any feelings of tension or tightness that may be present there. And as you breathe, as you exhale, let go of any tension, tightness in your arms. [pause] Smooth and effortless breathing. Don't try to control it, just be aware of it. Letting go a little more each time you exhale. [pause]

Now once again scan your entire body looking for any signs of tension or tightness that may remain. Get in touch with those areas of the body. [pause] Take a full breath -- hold it momentarily, and then gently and slowly exhale. Letting go. Allow that remaining tension in your body to melt away each time you exhale. [pause]

Now again, paying attention to your arms and hands -- forearms, hands, all the way to your fingertips. Take a full breath and as you exhale think about warmth flowing into your hands. Then resume a normal breathing pattern and with each exhalation think about a feeling of warmth flowing into your hands. [pause] Each time you breath out think about that warmth flowing into your hands --

not trying to force anything to happen -- taking a very passive, observing attitude -- just watching things happen. [pause] Try to establish a smooth, rhythmic breathing pattern. Every once in a while you may wish to take a full breath, with a gentle exhalation, thinking about that warmth flowing into your hands, all the way to your fingertips, as you exhale. [pause]

At this point you may wish to work further with the breathing exercise or you may wish to use some other relaxation approach, but either way continue to practice relaxation for the next several minutes on your own. And be sure to practice relaxation throughout the day using the scan and release method. Also you should take several minutes each day for relaxation using the techniques you have been learning.

APPENDIX D

Lecture Transcripts

UNIT ONE LECTURE TRANSCRIPT

Welcome to the headache self-management program. This is the first of four units, each of which is intended to last approximately 2 weeks. The program is designed to systematically help you acquire a set of skills for controlling your headaches. Each unit within the program will contain several components. One component will be a taped lecture that is an introduction to the material in the unit such as the one you are currently listening to. On the other side of each cassette there will be a relaxation tape for daily home use. Third, each unit will include a written manual. You should have some written material which constitutes the first manual -- the materials for Unit 1. The manual includes background information about the topics covered in each particular unit and will provide various instructions and troubleshooting materials. There will also be application materials included within each unit. These include data collection forms, such as the ones you have been using, as well as the variations on this type of headache record . In addition, materials for helping you identify headache triggers as well as other activities such as applying your relaxation skills, or skills such as those involved with stress management, will be included.

The primary focus of the first unit is to provide you

with some background about headaches and approaches to controlling headaches. Unit 1 is also designed to get you started with relaxation training, which is the single most important treatment that the self-help program utilizes.

There are a few topics discussed in the manual that I'd like to briefly elaborate on. As you listen to the tape now, you should have your Unit 1 manual with you, since I will be referring to some of the sections and diagrams in it. Let me first discuss the types of headaches that the program is intended to treat. These are within your manual -- discussed on pages 3, 4 and the top of page 5. The first type of headache that we are attempting to treat are muscle-contraction headaches. These are thought to result from sustained contraction or tensing of scalp, facial, or neck muscles. These headaches are often referred to as "tension" headaches. Throughout the treatment program the terms "muscle-contraction headache" and "tension headache" will both be used to refer to the same thing.

One of the important mechanisms that is thought to cause pain in tension headaches is called ischemia. Ischemia refers to a condition where there is a lack of oxygen reaching the muscle tissue which, in turn, causes pain. It is thought to arise from the increased pressure in a muscle that is associated with tensing or

contracting. For example, if you make a tight fist you feel that the hand and forearm becomes quite hard. The muscles become hard. This is associated with an increase in pressure within the muscle which compresses or squeezes the blood vessels and impairs the blood flow. Since the blood is not flowing freely to that muscle there is a lack of oxygen reaching the tissue which results in pain. This would be the same mechanism of pain that would occur if you were to tie a turnicate around your arm. Muscle fatigue is another source of pain used to account for tension headaches.

Tension headaches are often found in the region of the neck or upper back, the back of the skull, and sometimes in the forehead and temple regions . They are typically on both sides of the head and often described as a dull, aching pains -- sometimes a burning pain. However, a muscle that is in severe spasm may cause pain that is experienced as a sharp feeling or a stabbing pain.

Another type of headache that is addressed in the treatment program are the vascular headaches. The primary type of vascular headache is the migraine headache. Vascular headache pain is associated with dilation of various scalp arteries. Dilation simply refers to an enlargement of those blood vessels. Other factors such as swelling or inflammation in the region of

the dilated blood vessel often are also present and account for some of the pain being experienced during a vascular headache. Severe migraine headaches do, however, involve disturbances throughout the body. The headache is simply the most prominent symptom, although many other symptoms may be present such as general edema or water retention , stomach upset, nausea or vomiting, and chemical imbalances throughout the body. All kinds of symptoms are associated with vascular or migraine, especially severe migraine headaches. Migraine headaches are often, but not always, one sided. The pain is often, at least initially, focused or very localized with sharp or throbbing qualities.

Migraine headaches have been broken down into two types: classic migraine and common migraine. Approximately 80% of migraine headaches sufferers are diagnosed as having common migraine . The distinction between the two types involves the presence of or absence of an aura or prodrome that precedes the headache. People who have classic migraines experience visual disturbances such as zig-zag lines, or spots where the visual field is lost. Other symptoms such as numbness or tingling, and even partial paralysis can precede the headache as part of a prodrome. These symptoms appear to arise from constriction of blood vessels within the certain parts of the brain. This causes ischemia, which

in this case refers to a lack of oxygen reaching certain parts of the brain. This results in various neurological symptoms. Some of these processes will be discussed in more detail in the next unit.

In the manual another type of headache is identified and that is mixed headache which is described as a combination of both vascular and muscle-contraction headaches. As it turns out, many headache sufferers do not fall neatly into the classification of vascular or migraine type headache versus muscle-contraction or tension headache. Many people have symptoms of both types of headaches. Some people may experience muscle contraction headaches at times and vascular headaches at other times. Or given headache could have characteristics of both muscle-contraction and migraine headache. It is not uncommon for a person with a migraine headache to experience a contraction of muscles in the neck which further aggravates the headache pain. Some people will begin with one or the other type of headache and it eventually evolves into more of a mixed headache pattern. For example, it is not uncommon for people to experience periodic migraine headaches -- maybe once a week or a couple times a month for part of their life -- and eventually find that these worsen into more of a mixed headache pattern where they may be experiencing daily or near daily low-grade muscle-contraction type headache

patterns with periodic severe migraines. This is a more extreme form of a mixed headache pattern. These types of headaches will be discussed in more detail in the next unit and an alternative classification scheme will also be presented to help you better understand headaches processes especially as they relate to the self-management of the headaches.

Do not be put off if you do not fully understand all of the material about the headaches or the background information. It is not essential that you understand this to make effective use of the various treatment procedures and techniques contained in the program. This information is included to help you better understand and have a better conceptualization or rationale for the various techniques that are used in the self-management of headaches.

I'd like to now expand on the section of the manual starting on page 5 headed "Elements of a Headache." I'll be referring to that diagram which depicts four components that are present in headache conditions. It's easiest for me to explain them by working backwards through the diagram. The diagram shows a progression of interacting factors that results in pain and other symptoms, that is, the headache itself. This is represented at point "D," the bottommost line on the diagram. The pain and other symptoms associated with the

headache are caused by physiological disturbances that underlie them. This is point "C." These are things such as sustained muscle-contraction, or the dilation of blood vessels and accompanying inflammation in the case of a migraine headache. These are physiological or biological disturbances that underlie the headache are, in turn, caused by trigger factors, point "B" on the diagram. Trigger factors are those things that bring on or aggravate a headache. There are all sorts of triggers. They can be biological, for example, hormonal changes in women. Approximately 60% of those women who experience vascular type headaches find there is a relationship to their menstrual cycle. This is a hormonal headache trigger. Headache triggers can be environmental. For example, weather changes can have an effect on vascular headaches. Another group of headache triggers are dietary. For example, skipping meals is a common trigger for headaches. Another type of headache trigger is stress. This is the single most commonly identified trigger. It can bring on both muscle-contraction and vascular type headaches. There are other triggers and those will be discussed in more detail along with ways of identifying them in later units. There is one other component depicted in the diagram and that is "A," predisposition. A predisposition refers to the fact that the headache sufferer is in some way at risk or

vulnerable to experience headaches. This may be an inherited tendency toward headaches or maybe something that has been acquired during a person's lifetime. A predisposition simply means that a person has a tendency to have headaches just as someone else may have a tendency or predisposition to high blood pressure or ulcers or other types of health problems. With migraine headaches there are often appears to be a hereditary component. These types of headaches run in families. It is less likely that muscle-contraction headaches have a hereditary component. The tendency or predisposition towards headaches may be something that is acquired during a persons lifetime. For example, a head injury or dental problems that occur during a person's life could make him or her more prone to having headaches.

I'd like to now briefly now touch on the various approaches to treating headaches. These general treatment approaches are discussed at the bottom of page 5 and on the top of page 6. These are general treatment approaches and they could be medical treatments or the behavioral self-help treatments.

The palliative treatments are those that are used to reduce the headache symptoms. The most common is the use of pain killers or analgesics. There is a very wide spectrum of analgesics available ranging from aspirin or Tylenol and other types of nonprescription medications to

strong narcotics such as codeine, Percodan and Talwin. Other medications to relieve symptoms such as upset stomach also are palliative. Again, by palliative, I am simply are referring to the fact that the treatment is intended only to reduce the symptoms and does not interfere with the headache process or prevent headaches. Laying down in a dark room, the use of heating pads or ice packs, or any other types of symptomatic relief procedures would fall into the category of palliative treatments.

A second type of treatment approach is abortive. Abortive treatments are those attempt to interfere with or stop the physiological processes that underlie or cause the headaches. For example, during a vascular headache, as you recall, one of the problems is a dilation or enlargement of certain blood vessels. One way to try to stop this process is to use medications that constrict the blood vessels thereby reversing the process that results in the headache. Muscle relaxant medications also are sometimes used in an attempt to break up the cycle of pain and tension involved with muscle-contraction headaches. Some medications such as Fiorinal can fall into both the palliative and abortive treatment classifications. Fiorinal contains a sedative or muscle relaxing type medication as well as pain killer or analgesic medication. The analgesic is a palliative

treatment in the sense that it reduces the symptoms or the pain of the headache. On the other hand, with the muscle relaxant it can also be classified as an abortive type treatment since this type of medication is used to break up the pain-tension cycle.

A third treatment approach is preventative, sometimes referred to as prophylactic treatment. This approach is often used when headaches become more frequent or more severe. Medication such as Inderal and other drugs of this type, which are known as beta-blockers, are commonly used preventative medications for vascular headaches. This type of medication is used to reduce a person's predisposition to the headaches. Inderal, for example, has a stabilizing effect on the blood vessels. Thus, when a person is exposed to a trigger for a vascular headache there is a decreased likelihood that dilation of the blood vessels will occur and a headache will subsequently develop. Antidepressants are another type of medication that is employed for frequent muscle-contraction headaches, and also in mixed headache patterns. The antidepressants, although it is not entirely clear how they work, appear to be correcting chemical imbalances that predispose a person to have headaches.

The self-help or self-management approaches to controlling headaches can fall into any of the three

treatment catagories, although ideally they are preventative in nature. The ultimate goal of relaxation training is to prevent headaches, although for certain individuals these techniques can be used to abort headaches and for many individuals they can be used to reduce the symptoms of a headache. Therefore, relaxation skills can potentially be abortive and palliative in addition to being preventative in nature.

At this time I'd like to move on and talk about relaxation training. The primary emphasis of this first unit is to get you started with relaxation training which basically involves using the relaxation exercise that is contained on the other side of this tape. Before I discuss that exercise itself, let me talk a little bit about the general concept of relaxation.

Almost any system in the body can be looked at in terms of it's level of arousal or activation. If some system in the body is at a high level of activation or arousal we often say that it is in a state of tension or high arousal. If it is very inactive, we often say that system is relaxed. In these early stages of relaxation training we are essentially focusing just on the muscles and the acquisition of relaxation skills as they pertain to the muscles. Muscles are said to be tense when they are in a state of contraction, that is, when they are being used or tightened. When a muscle is not being used

and has a low level of contraction present it is described as being in a relaxed state.

Relaxation training is designed to help increase your awareness of the state of tension within your muscles and also to increase your control -- your ability to relax or reduce the amount of tension present in the muscles of your body. This is important in a very straightforward way for controlling tension headaches. It is also important in achieving a state of general overall relaxation where other systems in the body also become relaxed. Relaxation of these other systems is especially important in achieving a more complete level of relaxation that is often necessary to control vascular headache type processes. Initially, however, we are going to focus just on the muscle relaxation because it is easier to achieve and it lays the foundation for learning to eventually have more control over all systems within the body with respect to tension and relaxation.

At this first stage of training we are also concerned primarily with <u>acquiring</u> the relaxation skills and less concerned with the ability to apply these during your daily life -- although that will eventually become important. The relaxation exercise on the other side of this tape is designed to help you acquire these skills and to help you recognize the distinction between tension and relaxation.

We always carry a certain amount of muscle tension in our bodies, otherwise we would be slumped over unable to maintain an upright posture. Muscle tension is necessary for us to move about or even sit up. However, we often carry higher levels of muscle tension than we need to. For example, many of us have habits of clenching our teeth, holding our shoulders tight, making fists or in other ways holding tension in our body that serves no purpose. This tension is not being used for anything, but may be present on an almost continual basis, even when we sleep. Typically, we are not aware of this tension unless it produces some undesirable outcome such as a headache, or the pain of a muscle spasm. As you become better at relaxation one of the things you will be attempting to do is recognize this tension more throughout the day and take steps to undo it. In other words, take steps to maintain a more relaxed musculature throughout your body.

This first relaxation exercise you will be using involves the "tense-release" approach where you will first tense a muscle group and then release that tension. The tape will systematically guide you through your body and have you tense, then release various muscle groups. For example, it starts with your right hand and will have you make a fist and tighten your right hand and forearm -- hold that tension -- study those feelings of tension --

and then release it.

You may wonder why we create tension if our goal is to ultimately produce relaxation. There are a couple of reasons for taking this approach. One is to contrast the difference between tension and relaxation to allow you to become more familiar with the feelings associated with these two states. In addition to making the distinction between tension and relaxation more exaggerated, tensing the muscles prior to relaxation allows you to develop a kind of momentum or running start toward relaxation. When you tense a muscle, fatiguing it slightly, and then let go, it tends to fall to a level of relaxation that was lower than when you started. This approach has been used successfully for a number of years as a way of teaching people muscular relaxation. It has been chosen as a starting point for your relaxation program because it is easy to use and understand, and because it will help you begin to develop a greater "muscle sense" -- a greater awareness of muscular activity in your body.

The relaxation exercise itself as well as the rationale for using it with headaches is described in more detail in the manual. However, there are a couple of bits of information that I would like to point out. First, the word "exercise" in relation to the relaxation is used simply as a convenient way of describing the activities involved with practicing relaxation. It is

not meant to be an exercise in the sense of a physical workout. Also, as you listen to the tape and are instructed to tense various muscle groups, you may find that you also create a tension in other parts of your body. I want you to try to tense only that area that is being focused on at a given time by the instructions on the tape. I once worked with a man who had tension headaches where we were using this type of relaxation approach. He found that his chronic headache actually worsened while he did the relaxation. I had him do the exercise in my presence and noticed that when he would tense various areas of his body, for example making a fist or tensing his leg, in almost all cases, he would also clench his teeth and furrow his brow. There were two problems: He was tensing too extremely and he was creating unnecessary tension in his facial muscles when he was actually focusing on other body parts. I would like you to try to be aware of this potential problem and try to tense only those muscle groups that are being focused on at a given time. This is something that you'll get better at with practice.

Now again, let me emphasize that we are primarily concerned with acquiring these relaxation skills under ideal conditions. The cassette tape acts as a coach or a guide to help you stay with the task. I encourage you to try and be aware of tension through the day or habits

that you might have such as clenching your teeth or holding tension in your scalp muscles and try to release this tension. Although initially this is not the focus of training and any successes you have in doing this should be considered a bonus. You should try to practice with the tape on a daily basis. If you have any problems or questions, feel free to contact me. Good luck.

UNIT TWO LECTURE TRANSCRIPT

Let me begin by discussing the relaxation procedures that you have been practicing the past two weeks. I hope that the practice went well for you. If you have had problems achieving relaxation using the tense-release approach there are several possible reasons for this. One reason is that relaxation may be a new and unfamiliar activity for you and that learning to acquire relaxation skills is something that will take time and practice. Don't be discouraged if this is the case, however, since it suggests that you may be holding tension and, indeed, this is likely to be an aggravating factor in your headache condition. Time and practice will pay off as you do begin to acquire relaxation skills. Other people find that the tense- release approach is not suited to them for other reasons. One may not care for the approach or simply may not respond well to it, whereas the same person may achieve excellent relaxation using other exercises or approaches. For some people the act of tensing muscles during the process of relaxation is disruptive to that relaxation. It makes the process of relaxation seem too much like work -- an active process -- where actual relaxation is a passive process of letting go. If you've had problems with the first relaxation approach, the tense-release exercise, don't be discouraged. The other approaches utilized in the

program will build upon the first exercise, but are actually quite different. You may find that these are better suited or more useful for you in achieving relaxation.

If you did find that the tense-release approach was enjoyable and/or was very effective for you in achieving relaxation, I still would like you to utilize the other relaxation exercises contained in the program. They are meant to be a series, to be built upon each other. You also may wish to return occasionally and use the tense-release approach at least part of the time. The tense-release relaxation tape, as with all the tapes, will be yours to keep and in the future be something you can use on your own. Even if you do not particularly care for the tense-release approach, or if it does not provide you with the best level of relaxation, I would encourage you to use it from time to time in the future. And pay special attention to the skill of tensing only those muscles that you are focusing on at a specific time. It is very common for us to tense muscles that we are not intending to use. For example, someone who is clenching their teeth when they are driving their car. The clenching of the teeth provides no useful function. That same person may be also tensing their shoulders or tensing their left leg when the muscles that are being tensed are not in any way involved with the task. The

tense-release approach can be useful in helping you acquire an awareness of these tensing patterns as well as to acquire the ability to tense only specific muscle groups while maintaining relaxation in the other muscles of your body.

For the purposes of the training program, I would like you to set aside the relaxation approach from Unit 1 and move on to the relaxation approach included in Unit 2. This second approach is referred to as passive relaxation. As I mentioned earlier, you may wish to occasionally use the tense-release approach, however, consider this an addition to the use of the current tape of the unit that you are on.

The passive relaxation approach has certain similarities to the first exercise in that it will guide you through your body, systematically focusing on one area of the body at a time. However, it does not have a tensing component. You will be asked to focus on an area and become aware of the sensations there. Then it will provide you with suggestions or phrases that you say, or actually think, to yourself geared toward relaxing that part of your body. For example, the beginning of the passive tape, the first area that is focused on is the right arm and hand. It will say something like this: "Become aware of your right arm and hand. Pay attention to the sensations there. Now think to yourself the

phrase "my right arm is heavy and limp." There will be a lot of words like heavy, loose, limp, relaxed, and soft. These kinds of words are suggestive of relaxation. In regard to your arms and hands, the idea of warmth will also be introduced. One of the phrases used includes warmth and goes something like this: "My right arm is heavy. My right arm is heavy and warm. Warmth flows into my hand." This is also done with the left hand. The idea of the warmth is to allow the blood vessels to relax which is an indication of relaxation of the nervous system, more specifically, the autonomic nervous system.

Some of you will find that with this passive relaxation approach you are able to achieve a very deep state of relaxation. For others, the ability to relax, again, will come more slowly. Because passive relaxation is a mental approach to relaxation, the attitude you take to the exercise is very important. You want to keep in mind that relaxation is a process of letting go. It's a process of releasing tension. It's not something you can force to happen; its not something you can make happen. Don't try to force relaxation, don't strive to achieve it. Simply sit back, take a rather passive attitude, listen to the suggestions provided on the tape, and just allow those sensations that are being described to occur. Try not to be critical of yourself and certainly do not become discouraged if you do not have immediate results.

Most of you will find that some degree of heaviness and relaxation will be achieved especially in areas such as your arms. And most of you will find that other areas such as your neck and shoulders are more difficult to relax, and take more practice. The warming component is something that some of you will achieve immediately and some of you will find does not occur at all even with a number of practice sessions. Consider the warming to be kind of a bonus if you do achieve it and don't be discouraged if it does not occur. The warming signifies a deeper level of relaxation where the nervous system is beginning to slow down. The blood vessels are beginning to relax. This is very desirable, but it is also more difficult to achieve. The warming component is introduced to you in the second unit but it is not the focus of the exercise. It will be covered more in the exercise contained in Unit 3.

If you do achieve a deep state of relaxation with the exercise you may find that you experience a variety of strange or unusual sensations, or sensations that are very unfamiliar to you. These include warmth, tingling, or feelings that your limbs are expanding or floating. Your muscles may twitch occasionally. There may be a variety of things that you experience. If you do find these occurring this is a good sign that you are getting relaxed. Welcome and encourage these feelings. If they

seem unusual to you, that is simply because you are typically not achieving a state of deep muscle relaxation -- it is new to you. What you are feeling are changes occurring in your body that are associated with the relaxation.

It is common for people using passive relaxation approaches to find that their attention wanders. Various unwanted thoughts will intrude. You may begin to think about things you are going to do later or something that has happened earlier in the day. This is quite likely to occur from time to time during the tape. Do not become upset about this. Simply bring your attention back to your body and experiences that you are having internally, as well as the instructions on the tape. You may find that a number of times throughout the exercise you will have to bring your attention back.

Another thing that may happen is that your mind may tend to drift or wander off -- not so much in active thought, but more into an almost dream-like or sleep-like state. This is not the goal of relaxation as we are using it, but don't become concerned about it because usually it's a good sign that you are very relaxed. Some people will say that they have fallen asleep during the tape when actually they may have drifted in and out of it, missing a few parts, although not actually falling sound asleep. Again, this is the type of thing that is

associated with a nice, deep level of relaxation and is not something that should be of great concern to you.

If you do actually fall asleep or you find yourself getting really drowsy using the passive approach, you may wish to try some changes in your environment when you do the tape. You might try it sitting in a chair rather than lying down and if you have to, you may even try it with your eyes open. If using the passive relaxation exercises makes you feel drowsy afterwards, a good idea is to take a brisk walk or do some stretching. Move about a bit and this will tend to wake you up. This relaxation approach is often useful for people to become drowsy to help them fall asleep although this is not the goal of our use of the passive relaxation approach. For our purposes this drowsiness is more or less a side effect of becoming relaxed. Of course, you can use the passive relaxation if you do have problems sleeping, although I would ask you to practice with it also at some other time than bedtime as your primary practice session for the purposes of headache management. There is more information describing the passive relaxation approach contained in the last section of the manual for Unit 2. You should read this information and you may want to refer back to it after practicing with the tape.

Let me move on to other topics contained in Unit 2. The first section of your manual for this unit contains

some information about the headaches, but goes into greater detail about the various complexities of these headaches than was presented in Unit 1. A different way of looking at headaches is also provided. This is described as the severity model and it differs quite a bit from the more traditional classification scheme which tends to categorize headaches into distinct diagnostic groups, such as the muscle contraction, vascular, and mixed headache groups. The next section of the manual discusses some of the various factors that can trigger headaches and I'm going to discuss both the mechanisms and the various triggers. Again there will be a couple of diagrams that I will refer to so you will want to have your manual with you while listening to this introduction.

As far as the application component for Unit 2, relaxation is again stressed and this is the passive relaxation exercise contained on the other side of this cassette. Also you are asked to begin looking at some of these potential trigger factors and make appropriate changes or modifications that may help eliminate them . Now let me return to the material covered in the first section of the manual regarding headache processes and mechanisms.

In the first unit, some very basic headache mechanisms were described and headaches were broken down

into basically three types or patterns: the muscle contraction or tension variety, the vascular and migraine variety, and the mixed headache variety. These follow traditional classification schemes, traditional diagnostic classifications that are used in medicine. This classification scheme has been used for a number of years now and in addition to grouping headaches, each of the classifications are diagnoses that imply certain types of headache mechanisms. Twenty-five years ago or so, the headache mechanisms were thought to be fairly straightforward and the types of mechanisms described in Unit 1 were used to account for them. Over the years, however, as we have learned more about headaches it has become increasingly clear that there are many, more complex processes involved. The mechanisms described earlier do not fully account for or fully describe the processes that underlie the various headaches. Some of the other factors that are present in headaches are described in this first section of your manual.

For the vascular headaches, and more specifically the migraine headache, a number of factors have been found to be present. One, of course, is the dilation or the enlargement of the certain blood vessels. However, this is not enough to account for the pain of a migraine in and of itself. Please look at the diagram on page 3 of your manual. This shows a blood vessel that is in the

affected area where pain is present during a migraine. A number of interacting factors are depicted in this diagram. One is the dilation of the blood vessel. Although, the stretching of the blood vessel wall is often pointed to as a source of pain it appears that there must also be other factors present for pain to occur. These include inflammation or swelling in the region of the blood vessel, that is, of the blood vessel wall and surrounding tissue. There tends to be a seepage of fluid into the surrounding tissue; the area becomes inflamed or swollen. Within the fluids contained around the blood vessel are various chemical irritants. These include neurokinin, histamine, and prostaglandins, as well as other chemicals. Some of these chemicals are irritating to nerves and cause pain. Other ones, such as the prostaglandins, appear to make nerves more sensitive to pain. What the diagram shows is that there are a number of factors interacting with each other which can help account for the fact that a migraine headache can be extremely severe.

A lot of research in migraine headaches is centered on the chemical serotonin. This is a chemical that is found in our nervous system and functions as a chemical messenger, that is, a means by which one nerve communicates to another. It has an important role in the regulation of our blood vessels as well as other

processes in our body, including our moods and our perception of pain. It is also involved in the regulation of sleep. It appears that at the onset of a migraine, often prior to the actual headache, there is a release of this substance and the levels of it in the blood stream increase rapidly. This is followed by a depletion of the substance and a decrease in the levels of serotonin in the blood stream. This depletion is associated with the dilation of certain blood vessels and maybe one of the major factors that causes the migraine to occur. Serotonin is involved apparently in the regulation or perception of pain and it appears that when serotonin levels are depleted, as during a migraine, we are more sensitive to pain. So this is another factor that may contribute to the severity of a migraine. Another group of chemicals that have only been identified in recent years within the nervous system are the endorphins. These appear to be natural pain killers that are present within our bodies. Some research has shown that these are also at lower levels during a migraine headache and this would also tend to make us more sensitive to pain.

Muscle-contraction headaches have also been studied quite a bit in recent years and they appear to be more complex than was previously thought. As you will recall, the traditional explanation for the pain of muscle-

contraction headaches involves a sustained contraction of scalp and neck muscles and the complications that result from this such as ischemia or the lack of oxygen reaching the muscle tissue. Research on this type of headache in recent years has suggested that other factors may also be playing a role at least for some individuals. One is the constriction of blood vessels that is occurring not as a result of muscle-contraction compressing the blood vessel, but as a result of a problem in the regulation of the blood vessels by the nervous system. In other words the constriction or narrowing of the blood vessel may occur independently of muscle tension. There is also evidence some headaches described as muscle-contraction may have a vasodilation component and in that sense have similarities to the migraine type or vascular headache. Some research has also indicated that certain individuals with muscle-contraction headache patterns have abnormally low levels of serotonin. This could mean that these individuals are more sensitive to pain and that the regulation of blood vessels might be affected by the abnormalities in this chemical. It is interesting that serotonin is also involved with our moods. It appears to affect our moods in a very important way. People who are emotionally or mentally depressed often show very low levels of serotonin or abnormally low levels of serotonin. Indeed, people who are depressed often also

complain of headaches. It is possible that the decreased serotonin levels are causing these individuals to be excessively sensitive to pain sensations that normally would not be a problem. Various antidepressants such as Elavil have an effect of increasing the level of serotonin in the nervous system. This may be an important mechanism by which they are effective in controlling not only tension or muscle-contraction type headaches, but vascular headaches as well.

Some recent research has suggested that at least some tension headache sufferers have at least some abnormally low levels of endorphins. Again, this would make a person more sensitive to pain.

If one examines the headache research literature one conclusion that is easily made is that there are very complex processes that are involved with both vascular and muscle-contraction type headaches. At this point no one knows for sure how to fully account for the headaches and there are a lot of competing theories about the importance of various processes such as changes in serotonin, the endorphins, or some of the other chemicals that regulate our body. Another thing that is evident as one looks at the research on headaches is that you begin to see a lot of overlap in terms of some of the abnormalities found in individuals who suffer from muscle-contraction headaches, compared to those who

suffer from migraine headaches. This has led some headache researchers in recent years to assert that we should abandon traditional classification schemes for headaches. They contend that it is misleading to classify headaches as muscle-contraction versus vascular.

One alternative point of view has been referred to as the severity model. Rather than classifying the headaches we have discussed as separate entities, it puts them upon a continuum. This continuum is depicted on page seven. At one end of the continuum, which is to the left on the diagram, you have the simple tension headache pattern tending to be a low grade headache. In the mildest form they only occur periodically and they are not associated with other symptoms. The pain is usually dull and aching. The other end of the continuum, to the far right in the diagram, is the migraine headache pattern where a person experiences occasional intense headaches often starting as a very localized, often one sided sharp pain often described as throbbing or pulsating. These are typically associated with a variety of other symptoms.

Some people can fit very clearly into one end or the other of the continuum, however, most people do not fit in a clear cut way at either of these two ends. Most people are in the middle. They may show signs of muscle-contraction as well as signs of vascular or migraine type

headaches. Many times these people are diagnosed as having mixed headaches or a combination of vascular and muscle-contraction headaches. This is depicted in the center area of the diagram. Basically the diagram indicates the severity of the headache by the height of the bars and indicates the length of the headache by the length or width of the bars. As you can see, a mixed headache pattern often involves a continual low-grade headache that waxes and wanes which occasional severe headaches.

I believe that the severity model is a very useful way of looking at headaches for the purposes of headache self-management. When headaches are looked at from the point of view of the severity model one is not making assumptions about the underlying causes or processes that bring on the headache. One is instead emphasizing aspects of the headache such as severity and frequency. The primary distinguishing feature between migraine and muscle-contraction headaches as well as the mixed pattern is the pattern of headaches, not assumed causes of those headaches. The reason I believe this is a very useful approach is because it avoids the danger of classifying your headaches as one particular type and then overlooking causes or treatments because you assume that they are for a different type of headache. For example, someone might say "I have tension headaches, therefore

dietary factors are not likely to be a problem in my headache condition." However, it may be that even if a person's headaches fit the muscle-contraction pattern fairly clearly, we still would find that missing meals or some other dietary factor does play an important role in causing at least some of their headaches.

Let me briefly try to summarize this discussion of the headache types and the severity model. Research has found that the assumed causes or physical mechanisms for headaches are not as clear cut as they were once thought to be. Research indicates that there are a lot of complex processes going on and we certainly do not understand all of these at this time. The severity model basically is a descriptive approach, that is, it does not try to assume particular processes that are exclusively involved or are causing the headaches. It leaves open the possibly that any number of factors may be involved with the headaches and therefore it does not limit you in terms of the approaches you might take to treating your headache through the self-help techniques. In other words, you have very little to lose by abandoning the traditional classification scheme for your headaches and potentially a lot to gain by keeping an open mind so that you do not overlook factors that may be causing or aggravating your headache problem. The terms muscle-contraction headache, tension headache, vascular

headache, migraine headache, and mixed headache will continue to be used at times throughout the rest of the program. However I would like you to begin to think about these more as patterns of headaches and not as clear cut explanations for the processes that are underlined the headaches. Essentially, these terms are used for convenience.

Let me turn now to the topic of headache triggers. A headache trigger is anything that produces or sets into motion changes in the body that result in a headache. Triggers are things that bring on a headache or make a headache worse. Triggers of headaches come in many forms. There are dietary triggers such as missed meals, as well as certain foods. There are a number of environmental factors that can trigger a headache including weather changes, chemicals that one might run into in the environment, lighting, and things of this nature. There are various biological triggers. For example, hormonal changes that occur in women that are very frequently related to changes in headache activity. Approximately 60% of all women with vascular headache patterns show a relationship between their menstrual cycle and their headaches. There are other biological factors such as the presence of other disease processes like arthritis. Another categories of triggers are emotions and stress. Stress, in fact, is probably the

most commonly identified trigger for headaches. It is important to note that headache triggers may not only change over time but may often act in combination with one another. This tends to make it a little more difficult to identify them because you may be exposed to a trigger at one point in time and not experience a headache, while at another point in time you do experience a headache. This may largely be do to the presence or absence of other factors that would interact either to bring on the headache or to inhibit its occurrence. For example, just because skipping meals does not always bring on a headache, this does not mean that it is not a contributing factor to at least some of the headaches you experience. It is possible that it may need to act in combination with other triggers such as stress, or the menstrual cycle, or the amount of sleep a person has had -- things of this nature -- in order to actually cause the headache.

The manual contains a fairly lengthy discussion of caffeine as a headache trigger. Some people find that caffeine aggravates their headaches because it is a stimulant and can increase tension and the effects of stress. However, this is not the typical way that caffeine acts as a trigger.

Caffeine is a drug that is often present in medications marketed to relieve headaches. Excedrin, Anacin,

Cope, Vanquish, Midol, Cafergot, and Fiorinal all contain caffeine as do many other medications. Many people report that medications containing caffeine are more effective for relieving their headaches compared to those that do not. This may be due to the fact that caffeine is a vasoconstrictor and if there are vascular processes involved with the headache the caffeine can help alleviate the headache by decreasing the degree of dilation present in the blood vessels.

So why is caffeine a trigger? It is often by way of what we call "rebound effects." When a drug such as caffeine is taken on a regular basis the body develops a tolerance to it. Part of this tolerance may involve the body fighting back or compensating for the effects of the drug. For example, caffeine has a vasoconstricting effect. The body may compensate for this by exerting influence on the blood vessels to dilate them slightly or dilate them back to their normal state. Over time the body adjusts to the presence of the caffeine and may be constantly trying to compensate for its effects. If the caffeine is suddenly removed, the compensating effects are still present in the body and what occurs is called rebound vasodilation; the blood vessels suddenly enlarge a great deal. This is where the headache may be triggered. If a person consumes large amounts of caffeine on a daily basis they may experience rebound

headaches each morning since they did not have caffeine during the night during sleep. One of the traps of this process is that one of the best remedies for this type of headache is to take the substance that causes it -- in this case taking more caffeine. A lot of people wake up in the morning with a headache and they take some Excedrin and maybe gulp down a cup of coffee and this has an immediate effect of reducing their headache. Unfortunately in the long run this strengthens the rebound headache cycle.

If you suspect that caffeine may be playing a role in your headaches -- and you should suspect it if you consume caffeine on a daily basis, especially throughout the day -- you should consider tapering your caffeine consumption over a period of two or three weeks until it is eliminated. Initially you might experience an increase in headache activity, and, indeed, if this does occur that is evidence to suggest that caffeine may have been playing a role in your headaches. Research suggests that people who do have these rebound headaches and do eliminate caffeine will often experience a reduction in headaches. It is uncommon that they are any worse off than when they were consuming large amounts of caffeine. However, do keep in mind that there is essentially a withdrawal from the caffeine where headaches may actually increase. Do not be concerned about rebound headaches if

you only take a small amount of caffeine such as a cup or two of coffee in the morning.

Rebound headaches can also occur from other medications including the analgesics -- especially the stronger pain killers like the narcotics. If you are taking large amounts of these they may also be playing a role in maintaining your headache problem, and in the long run doing more harm that good. If you feel this is a problem you may wish to reduce this type of medication. Although, if you are taking fairly large amounts or taking the medication frequently, you should do this in consultation with your physician. Certainly if these are taken with the direction of your physician, you should consult him or her before making any changes.

Other medications such as ergotamine can cause rebound headaches. If you are taking ergotamine on a regular basis this can result in very severe rebound headaches and withdrawal should be done under the direction of a physician.

I also want to mention cold and sinus preparations which contain substances which tend to be vasoconstrictors. These may also result in rebound headaches.

In the manual some of the other headache triggers are discussed along with instructions and suggestions for controlling them. In later units more headache triggers

will be introduced. At this point you should begin the process of trying to identify potential headache triggers and take steps to eliminate them as appropriate.

Your headache records now contain a space for recording anything that might potentially have caused a given headache. Record anything that you suspect as a possible headache trigger. If something appears to reappear frequently, that is further evidence that it is indeed aggravating your headaches and steps should be taken to control it.

UNIT THREE LECTURE TRANSCRIPT

Welcome to Unit 3 of the headache management program. This unit will introduce you to some new techniques for relaxation and will also focus on stress management and a particular set of techniques for managing stress. The first thing I would like to discuss is the use of relaxation and where you are at now, as well as where you will be going in this unit. Up until this point the focus has been on muscular relaxation with the tense-release approach and the passive approach. I want to point out once again that people vary a great deal in how quickly they master relaxation skills and how completely they are able to relax. Some of you will be achieving very deep states of relaxation while others will be having more difficulty. If you are able to relax very deeply I would encourage you to begin practicing your skills more independently of the cassette tapes. Practice them on your own, however, you should also use the remaining cassette tapes in the program. If you are having difficulty with relaxation it is probably best that you work with the tapes, although this is not a hard and fast rule, some people find that the use of the tape is a bit distracting and they prefer to do it on their own. You have to experiment with this to find out what suits you best. If you are having difficulty with relaxation don't be discouraged at this point. Many

people have lifetime habits of holding a great deal of tension in their bodies and it takes more than a few weeks to learn to release this tension. A lot of you will probably find that you will be able to relax your arms, legs and some other parts of your body quite effectively, but have difficulties with certain areas. Difficult areas to relax may include the face and scalp as well as the neck and shoulders. These areas may feel tight even after relaxation. I would want to stress that you try to relax this area throughout the day. Also pay attention to your posture. You may want to take breaks throughout the day, especially if you have a job where you are sitting or typing at your desk all day. Take breaks to stand up and stretch, move your arms about, hold them over your head to change the position -- to move those muscles. Almost any form of exercise where you are gently using those muscles can be helpful. For example, swimming can be very helpful in breaking up the tensing patterns in those muscles.

Although the previous units have focused on muscular relaxation, some of you have probably experienced some degree, and in many cases a profound degree of relaxation of the autonomic nervous system. Signs of this would be warmth and tingling in the hands, a feeling of throbbing or pulsating in your limbs and hands, mentally drifting off from the tape, and feeling a bit drowsy. This will

often occur with muscular relaxation because as your muscles relax, demands on the other parts of your body -- the lungs, the heart and so forth -- are reduced which, in turn, allows the autonomic nervous system to slow down and relax. In this third unit you will use some techniques that are directed specifically at achieving relaxation of the autonomic nervous system.

The relaxation exercise for Unit 3 is comprised of three sections. The tape begins with tense-release exercises for relaxing the muscles in the face, scalp, neck, and shoulders. This is done a little more quickly than in the first tense-release exercise, and is designed to provide as reemphasis on this area of your body because it is the area that is most likely causing problems from excessive muscle tension. It is also an area that is more difficult to relax than other areas such as the arms and legs. The first part of the tape begins by taking you through this area and helping you achieve some degree of relaxation in the neck, shoulders and scalp regions. The tape then moves on to hand warming exercises.

Let me review the rationale for hand warming. Hand warming techniques have been used for over 15 years now for the treatment of vascular headaches. Hand warming involves a relaxation of peripheral blood vessels. By peripheral we mean the outer parts of your body -- in

this case the hands. As the blood vessels relax, they dilate somewhat and with this dilation comes an increased flow of blood to the hands. This causes the hands to actually warm up. This can be felt by an increased warmth in the hands which may be very slight -- all these sensations may be very slight. It may be also experienced as feelings of pulsation or throbbing as you feel your pulse. Other feelings such as tingling may occur. People will also find that they frequently feel their hands expanding slightly which, in fact, they are, as more blood comes into them.

The relaxation of the blood vessels occurs as a result of a slowing down or relaxation of the autonomic nervous system. The autonomic nervous system is the part of the nervous system that regulates our internal functions. It affects our heartrate; it affects our breathing, various internal organs, and it is involved with the control of constriction and dilation of our blood vessels. It appears that the relaxation of the blood vessels through autonomic nervous system relaxation can be disruptive to, or interfere with, vascular headache mechanisms.

When we warm our hands to prevent a headache it is not the warming hands that is of specific importance. It's the fact that when our hands are warming blood vessels throughout the body are also changing. Research

has indicated that the blood vessels in the scalp, particulary those involved with the headache, change in favorable ways when one warms their hands. This may be the mechanism by which the vascular headaches are interrupted through hand warming. This technique is ideally to be used as a preventative approach, although many people find that if they have a warning prior to their headaches as in the case of classic migraines, if they catch it early enough, they can stop and use their hand warming skills and relaxation skills and actually prevent the headache from developing.

On the relaxation tape you are prompted to focus on your arms and hands, one at a time -- first your right arm and hand, and then your left arm and hand; then to become aware of the sensations there. The awareness is important because the changes that are associated with the hand warming may be very slight and they may not be easy to sense. So you have to pay particular attention. Next you are instructed to use phrases such as "My arm is heavy and warm, warmth flows into my hand." The suggestion of warmth is repeated a number of times for the arm and hand. This is done with both the right and left arm and hand.

Something that is very important for the hand warming skills is that you maintain a very passive attitude. You cannot force hand warming to occur. Hand warming is a

much more subtle and a more difficult skill to attain than muscular relaxation. We use our muscles all the time. We are always tensing and releasing. Every time we move we are tensing muscles. If you pick something up and then let go of it, you have tensed the muscle and relaxed it. Using our muscles is something that is very familiar to us and relaxing our muscles is something that is very familiar to us, although not necessarily to the degree to which you've been doing it as part of the headache program. However, we do not go around consciously trying to control our blood vessels or slow down our autonomic nervous system. This is a very new type of skill and therefore is something that is going to be a little more unfamiliar and is more difficult to achieve. The autonomic nervous system and the blood vessels that are affected by the autonomic nervous system are very sensitive to things like our attitudes. We have to be in a very peaceful, quiet frame of mind to achieve hand warming and autonomic nervous system relaxation. It is something that you cannot force to occur. You cannot make it occur. You have to <u>allow</u> it to occur.

Many people will find that they get frustrated or that they are trying too hard in getting their hands warm. As long as a person does this they are going to fail. In fact, if you try too hard, your hands may actually cool because you are putting yourself under

pressure or stress and your autonomic nervous system is actually becoming more aroused rather than relaxed. Sometimes I tell people that are having difficulty in achieving the warmth to just "give up." Listen to the tape, use the images but don't be concerned about the response that you get. Just let it happen -- if it happens, and don't worry about it if it does not happen. Often, this attitude will result in the beginning of the warming process.

The phrases for warmth are used on the tape and are effective for some people. Also images are presented that may be useful in helping you learn handwarming skills. One of these images is of putting your hands in warm water. You are asked to imagine that feeling. Another is to imagine the feeling associated with warm sunshine and another image that is used is the warmth of a fire. In using these images, try to recall those feelings from past experiences. What did your hands feel like under those circumstances? What did that warmth feel like? Try to recall that in your mind. These images again are used as devices to help you begin to attain the warming skills. Use the imagery, experiment with it and pay attention to any changes that may be happening in your hands.

Now, when we talk about hand warming, the changes may actually be rather slight. A change in a couple of

degrees in your hands can be very, very significant, although it may not be something that you experience as a major change within your body. So be aware of any slight changes that you are experiencing and don't expect large swings in the temperature of your hands, especially if your hands are fairly warm to begin with.

The imagery is presented on the tape and then there are some instructions for practicing throughout the day. The last part of the tape is basically blank, but you are instructed to proceed and spend several minutes -- a good five minutes -- practicing the relaxation on your own. I strongly encourage you to do this. This will help you move to a more independent use of relaxation skills and also allow you to practice with the techniques that you find particularly useful. It allows you to experiment with the various imagery or other techniques that have been used in the past. You may also wish to use time to work on areas of your body that are difficult for you to relax such as your shoulders and neck region.

There is another area of relaxation that is presented in this unit. It is not on the tape but is described in your manual and that is diaphragmatic or abdominal breathing. I want you to first try a quick little experiment. Put your hand on your abdomen. Place your hand firmly over your navel and then take a nice deep breath. Did your hand move in or out when you took the

deep breath? Try it again if you need to. If your hand moved in while taking a deep breath, this suggests you are breathing with your chest or what's called thoracic breathing. This has also been referred to as backwards breathing because it is only using the upper portion of your lungs or it's not efficiently using the whole lung area. Even though this type of breathing is not efficient, it is probably the most common type of breathing that we engage in. Throughout our lives we have been told to keep a straight posture and hold our stomach in and things like that -- chest out, stomach in. This encourages a breathing pattern where you are using only the upper portion of your lungs efficiently.

Another form of breathing that makes more efficient use of the lungs is called diaphragmatic or abdominal breathing. In this case, as you inhale, your abdomen should expand. Try this. Place your hand on your navel again. Breath in and see if you can get the abdomen to expand. Actually the whole abdomen and chest expands as you breathe in and then deflates as you exhale. This type of breathing is more efficient and puts less work on the cardiopulmonary system than the thoracic or chest breathing.

If you have not had experience breathing abdominally or diaphragmatically, this may be a little tricky for you. It may be a difficult for you to do. It is the

opposite of the pattern that you normally do. There are some instructions in the manual for practicing diaphragmatic breathing which involve basically laying down, putting your hand on your abdomen as a means of getting feedback and practicing the breathing patterns. The reason this is included is that diaphragmatic breathing can be very useful as a relaxation technique. If this is something new or difficult for you, take time to practice diaphragmatic breathing until it is something you can do more naturally and more consistently. Diaphragmatic breathing should be used when you take deep breaths or when you consciously breathe during the relaxation exercises. Diaphragmatic breathing can also be a useful relaxation technique in and of itself and this is described within the manual.

You should take some time through the day, for a few minutes at a time, and try a breathing exercise where you focus on your breathing -- smooth and easy breathing, breathing diaphragmatically. To do this, inhale for a count of about 3 and exhale for a count of about 6. For example, "inhale 1 ,2 , 3 and exhale 1, 2, 3, 4, 5, 6. You may wish to count a little faster or a little slower depending on what suits you. The breathing should be comfortable, it should not be forced, it should be not particularly deep breathes but kind of a natural and smooth level of breathing. As you exhale you can think

to yourself phrases such as "I am relaxed," or "I am letting go." Exhalation is a natural relaxation phase when you are breathing diaphragmatically and all you have to do is let go and the breath will expel itself. We make use of this by encouraging further relaxation with the phrases associated with relaxation.

One of the reasons that abdominal breathing is introduced now is that it can be very useful in relaxation of the autonomic nervous system. When we are under stress, our breathing becomes shallow and more rapid. This is, in fact, part of the stress response. Diaphragmatic breathing, on the other hand, is a more slow, deep and even breathing as associated with relaxation of the autonomic nervous system. Many people find that when they are attempting the hand warming responses it is very useful for them to think of the warming phrases or images while they are gently exhaling. This is again something you are going to have to experiment with and try on your own working with the other various relaxation techniques.

In summary, in this third unit in addition to a continued focus on relaxation of the muscles of the face and scalp, you are introduced to the hand warming on the tape, some images and phrases with that, and also the diaphragmatic breathing. If you have trouble achieving the hand warming, don't be discouraged at this point.

This is something that may take time. A few people have actually never been able to achieve good warming skills. This does not mean that they don't benefit from the relaxation. For many people the hand warming is not a necessary requirement to benefit from relaxation. You may do just fine without it. In fact, the evidence suggests that muscular relaxation will for the vast majority of people give them the same benefits as the hand warming skills.

If you are having trouble relaxation you might eventually want to backtrack a bit. Focus on learning the breathing technique as well as you can. Learn that diaphragmatic breathing, learn the muscle relaxation, and incorporate the two together. Then gradually move on to the hand warming skills. For the time being though, for the next couple of weeks, I want you to work with the exercises on the current tape and give that a chance. Let's see if you can begin to achieve the warming response.

Another thing to keep in mind is that you have to take a very nonchalant attitude about this. If you try to push yourself too hard; if you try to force the hand warming, this is more likely to lead to frustration and stress. The warming response will not occur under those circumstances.

I want to move on and talk about stress management

as it is presented in the third unit. Stress is a very broad term. It's used to describe a whole variety of emotional reactions, behavioral reactions, environmental events and so forth. For our current purposes, we will be focusing on stress as it involves emotional reactions and more specifically the physiological component of emotional reactions. Whenever we experience emotions whether it is excitement, happiness or the more stressful kinds -- frustration, anger, guilt, sadness, these kinds of things -- our bodies are affected. The autonomic nervous system is aroused and there are affects on our blood vessels, heart rate, breathing and so forth. Our muscles will also tend to be more tense when we are under stress. The muscles and the autonomic nervous system appear to be the mechanisms by which headaches can be aggravated or caused by stress. Stress is usually used to describe more extreme or prolonged emotional reactions. But in the case of someone who is prone or predisposed to headaches, even more moderate stressful reactions or emotion -- everyday pressures and hassles -- can be enough to trigger a headache. This is because the person is more sensitive to the physical effects of stress, just as they are more sensitive to the physical effects of various other triggers that would not bother most people.

One of the main focuses in this unit is on how our

thoughts and beliefs, our attitudes, affect our perception of the world and how this, in turn, determines whether we will react to various situations as stressful or not. The focus is on becoming aware of those kinds of thinking patterns, those kinds of attitudes, and those kinds of beliefs that cause us to experience stress. Especially those thoughts and beliefs that cause us to needlessly or excessively experience stress.

We all have certain beliefs that are unrealistic, excessive or irrational that govern our behavior. We also all have patterns of thinking that may be illogical or distorted, biased or in some other way maladaptive. These are the kinds of thoughts and beliefs that can cause us needless and excessive stress. For example, a very common fear that people have is talking in front of groups. If I were going to be talking in front of a group, and I began to think about things like "I'm really going to blow this. I'm not prepared enough People are really going to think I am dumb. What if the slide projectors does not work, etc." If I begin to think like this, these thoughts that are going to create stress and anxiety. If I think that way enough, I begin to feel anxious, I feel tense. Then I may begin to think "Oh no, I'm nervous, people are going to know I'm nervous. My mouth is dry, I am going to be stumbling over my words" and these kinds of thoughts which further feed the cycle

of stress and anxiety. If it goes far enough, when I actually do talk in front of the group, rather than thinking about the topic that I am supposed to be thinking about, I am more concerned with my own worries and anxieties. And as a result I may do a poor job. I may trip over my words. I may forget parts of things and so forth and as a result of that, it becomes a self fulfilling prophecy. The next time I have to give a talk it may be even worse.

Now if we looked at many of the things that I was saying to myself to create this stress, a lot of them are excessive, unrealistic and irrational thoughts. And they are certainly not effective in helping me give the best talk possible. In other words, they're maladaptive. They don't have much to do with the task at hand and they generate stress. Ultimately they impair my performance. What I've done is to perceive the situation as very threatening, very taxing on my coping abilities, and reacted to it as a stress.

This whole mechanism of being threatened and anxious. tense, or physiologically under stress has some very adaptive aspects to it and it is something that we have inherited that has been very useful for the survival of our species. It is something that all animals show and is useful for their survival. It's adaptiveness can be shown in an example involving a real life threat.

Suppose we are walking in a woods and we encountered a wild animal -- a bear or something. We may begin to think to ourselves "This thing is going to kill me. I had better get out of here. This is terrible." etc, etc. Very stress inducing thoughts. We perceive the situation as a threat and we react emotionally. What happens is that our autonomic nervous system becomes arcused because of this perception of threat -- the heart beats faster, we breathe more quickly, our muscles become tense, blood is shunted to the muscles, adrenaline is pumped in to the system. A whole host of changes occur which basically prepare our body for action, and that is what we need in that circumstance. We need to either fight the animal off, which may be not the best idea in the case of the bear, or we need to flee that situation, we need to get out of that situation. In latter case we need to be able to run as fast possible. So whether our choice is to fight or to flee, those are the two basic options that we are confronted with in that situation. Complicated reasoning really does not apply. In either case we need to have our bodies ready for physical action and that is what the stress response does.

However, when we look at a situation like talking in front of a group, if I perceive that as a threat, my body shows the same type of stress reaction that I would have shown to the wild animal. The same type of stress

reaction that our ancestors showed back when they lived in the caves and were threatened by a wild animal, but in the case of talking in front of a group, it doesn't do me any good. I don't need to run, I don't need to fight in that situation. In fact, it gets in the way, it interferes with my ability to effectively give a talk in front of the group. Similar kinds of responses may be happening at other times in my life or anyone's life. Social situations, work situations, and family situations -- they all may be perceived as threatening or as taxes on our ability to cope. And we react with the physical stress reaction that we've inherited from our ancestors.

The majority of stresses in our life are not clear cut as in the case of being attacked or being confronted by a wild animal. That is a very clear cut threat. Most of the stresses in our life are more ambiguous and cannot be dealt with through physical means. This is where it becomes important for us to look at the way we are appraising situations, the way we are evaluating situations in our lives. In the case that I described with the stressful thoughts regarding giving a talk in front of a group, I have appraised that situation as threatening and I have appraised my own abilities in that situation as inadequate. I had stressful appraisals both with respect to the outside situation and my ability to cope. It may turn out that if one looked at my situation

realistically that the appraisals I made were totally false. Maybe there was every reason to expect that I was competent and had the skills to handle that situation to give that talk effectively. And also, there was a lack of evidence that the people within the audience would be in any way threatening to me even if I did goof up, did give a poor talk. So in that situation, objectively there may have been little threat but my own thoughts and beliefs.

The idea behind the stress management exercise in this third unit is to help you become aware of your own thoughts and attitudes and how they affect your stress reactions. To become aware of those areas in your life where you are placing excessive demands on yourself, where you are being perfectionistic, where you are jumping to conclusions, where you are making overgeneralizations, or where you are simply blowing things out of proportion. These are things that we commonly do. We awfulize or catastrophize. We say to ourselves "it will be horrible if I fail to do this" or "it would be terrible if they don't like what I brought to the potluck." We conjure up these dire consequences of some action or lack of action on our part and when looked at objectively, there is no dire consequence. There may be absolutely no consequence except in our own mind. And where there is a consequence, it rarely is

something horrible or terrible or life threatening or world ending. Yet we react that way, we think that way. Regarding the talk in front of the group, I may have thought if I mess up this talk it would be terrible, it would be horrible. Or if everyone didn't like me it would be terrible. In actuality, it wouldn't make much difference one way or another in my life. Failure to see that reality is a common way of aggravating our own personal stress.

Another way of bringing on stress is to create excessive unrealistic demands on ourselves. Shoulds or musts -- "I should behave in a certain way, I must behave in a certain way." If we violate those shoulds or musts, we feel guilty, we feel angry with ourselves. A lot of times these shoulds or musts pertain to performance on our part and often times they have to do with how we interact with other people. Excessive shoulds and musts are perfectionistic. They are demanding that we maintain a standard that can not be achieved. In some cases, one that we should not even want to achieve. Let me give you an example. A lot of people with headaches have excessive shoulds for themselves and one that I've asked people is "do you make your bed every day?" This is basically for women. Do you make your bed every day and how do you feel if you don't? A surprising number of people feel terribly guilty if they don't make their bed

or if they haven't made the beds in the house every day. Now this type of thing may create undo stress. They leave the house in a hurry and can't make the bed and they're feeling bad about it all morning. Or they are rushing around trying to get it done before they have to leave which may make them late for some appointment, and on and on it goes. When looked at objectively, it is really a trivial situation. This represents an excessive demand on ones self.

The manual describes a pattern again often common in women who are trying to please family members, who feel that they should devote their energy toward meeting the needs of others in their family. Then they feel guilty when they try to meet their own needs, when they do something for themselves. That may even happen with practicing relaxation as part of the program. People say that they are not used to taking that time for myself. Well, here is an unrealistic demand on one's self to try to meet the needs of others without meeting your own. That is going to lead to stress on your part and quite likely other problems such as resentment and anger at other people because they are not reciprocating that kindness or giving. In other words, people may take you for granted when you do that.

There is a worksheet included in this unit for helping you learn to identify the thoughts and beliefs

that are affecting your emotional reactions as well as your behavioral reactions. This worksheet has a number of columns and a number of steps to it. The first thing is to use your emotions as a cue to go through the analysis, to go through the steps on the worksheets. If you are feeling frustrated or angry, guilty, anxious, whatever, take a moment and look at a number of aspects of your reaction. First is what is the situation? What is happening in the environment? What are you reacting to externally? There are columns for writing all of these things down and I really suggest you do write them down -- it is very important. Get them in black and white and don't just try to do it in your head. It will really pay off to write these down on paper. First write down the emotion you've experienced, secondly you write down the situation, third, what are the thoughts involved or beliefs that underlie the emotional reaction. You may be able to catch some of the thoughts as they happen. Maybe you are thinking to yourself "I should not have said that" or "I should have taken care of this." You may not be able to catch the actual thoughts. You may have to look at your behavior and think about what beliefs might underlie that. How you are behaving and what kind of attitude or belief does that reflect? Try to do the best you can with that -- identifying the beliefs and attitudes.

The next step is evaluating those stress inducing beliefs and attitudes -- to challenge them to dispute them, to look at them critically. You can look at them in terms of the material discussed in the chapter. Are you magnifying or blowing things out of proportion? Are you putting excessive demands on yourself? Are you overgeneralizing? Are you personalizing them? Try to evaluate that in terms of how realistic, how logical, how rational they are, how much those beliefs fit with the evidence available to you. Or you can look at them in terms of how adaptive they are. Are they helping you lead a more stress free or effective life or do they just get in the way. Are they causing you unnecessary emotional baggage?

The last part of the process is to try to substitute more realistic or more adaptive, less stressful ways of thinking about that situation. The idea is to begin to not only recognize, but replace some of the stress inducing thoughts, attitudes and beliefs that you have. This is in a way similar to learning to break up patterns of tensing our body. We've developed them over our entire lifetime and it isn't something that you just undue overnight. When it comes to our thoughts and beliefs, we've developed those patterns over a lifetime and they are going to be resistant to change. In a way you are just beginning to chip away at them by using this

type of exercise. The first thing is simply becoming aware of them. That awareness and going through the steps of the analysis break up the automatic nature. The process begins to at least call your attention to the fact that these things are happening within you and it is part of your reaction to the world. That breaks up the unconscious or automatic nature of them. You are kind of intervening there to disrupt that process. This whole thing may happen quite automatically without your awareness. You are not aware of the way you are thinking or the types of attitudes you may have and we are not going to be aware of those until we look them. Also be continually challenging, disputing, confronting and questioning the stressful and maladaptive thoughts and beliefs, we can gradually begin to replace them with more efficient, adaptive and less stressful ways of thinking and looking at situations and ourselves. The emotional reaction you experience won't stop right away by just thinking a different way. It takes time to really begin to accept new ways of looking at things and you have to keep at it to achieve that. The person who is anxious talking in front of a group is not going to totally eliminate that anxiety just by telling themselves that it is okay, it is no big deal, if you goof up people aren't going to dislike you and so forth. But by chipping away at those attitudes over a long period of time, new ways

of thinking and viewing the situation will emerge.

One final comment. This is more than a matter of just positive thinking. It is a matter of more accurate thinking and a matter of beginning to look at in a systematic way how your thinking and beliefs affect how you react to the world -- something we normally do not do. Work with it and good luck.

UNIT FOUR LECTURE TRANSCRIPT

Welcome to Unit 4 of the headache management program. As usual, I want to start by just making some brief comments about the relaxation that you have been doing and the relaxation exercises for the current unit. In Unit 3, the process of hand warming, making use of some imagery and thoughts and phrases associated with warming, was introduced. I hope this was of value to you in achieving some hand warming skills. If it was, this is positive and it is something that you should try to encourage. Try to be aware of the kinds of techniques and the kinds of feelings that are associated with the warming and make use of those. You will find that as you practice it is something that you will get better at.

If you have had trouble with the hand warming and you are not noticing it occur, in fact, it may be occurring. If we were to measure the temperature of your hand we might find a temperature increase occurring; it may simply be that you are not aware of that change. In any event, if you are not aware of it or it is not occurring don't become discouraged. Hand warming is a subtle skill. It is something that often takes time to acquire. It's also the case that it's not an essential skill in the management of headaches. You can derive a great deal of benefit even if you are not achieving hand warming.

The relaxation exercise on the tape for Unit 4 makes

use of breathing techniques. Breathing is important in relaxation for several reasons. One is that our breathing tends to be affected a great deal by tension and stress. When we are under stress our breathing tends to become more shallow and more rapid. By learning to observe and exert some control over breathing our relaxation skills are further enhanced. The breathing can be very useful in helping achieve the hand warming response which is one of the reasons that it's incorporated. This is especially true of the diaphragmatic breathing because it is in many ways the opposite of the type of breathing we do when we are under stress. Smooth and regular breathing and the diaphragmatic breathing may be useful in slowing the body down, and achieving the relaxation of the autonomic nervous system, which in turn results in the warming of the hands. The exhalation phase of breathing can also be useful as a natural device for achieving muscle relaxation. You can think of exhalation as simply "letting go" of the breath. As you do that you can also focus on certain body parts and work with letting go of the tension in these areas.

Breathing techniques can also be of value for practicing relaxation for relatively short periods of time -- 3 to 5 minutes on your own. Focus on the breathing and use it in conjunction with other techniques

such as the passive relaxation or imagery techniques or even the tense-release approaches. Breathing is a good way to practice relaxation on your own because it is something that occurs automatically and it is affected by the tension in our bodies. The way we breath affects the tension in our body. It is something we obviously have control over if we choose to control it. And through exerting some control -- again in a passive way, not trying to force any changes -- using breathing can be a good way of developing relaxation in other systems in our body.

Breathing is also incorporated in a another relaxation approach that I want to encourage you to use that I refer to as the "scan and release" exercise. This is a very brief form of relaxation where you simply take a moment and scan the various areas of your body, mentally looking for signs of tension or tightness. Then you take a nice full breath, hold it momentarily, and slowly exhale, and as you do think about releasing or letting go of that tension in your body. This is a form of relaxation exercise that can be done in about 10 or 15 seconds. It is a good way of applying relaxation throughout the day and a good way to keep tension levels in your body in check. It is a good way to simply improve your awareness of what is happening within your body as you go about your daily business. Try to make

use of the scan and release relaxation exercise many times throughout the day. It is something that you may try to do any time you think of it. You may wish to do it every 15 minutes, for example, on the quarter hour. Strive to do it with regularity at this frequency. In this unit you are also provided with some adhesive colored dots that you can stick on things in your environment. People put them on their watches, on their mirrors, on their doors, and various places around their home or work environment -- places where they will see frequently but not continually. When you do see a dot you can use it as a cue to do the scan and release exercise. Also when you do notice tension or when you notice you are in a stressful situation, take the time to do the scan and release exercise. Again, with repeated practice, this is something that can become a positive habit and be very helpful in keeping your stress or tension level under control.

So, for this fourth unit I am enccuraging you to use the full length relaxation with the tape. You may also wish to begin practicing full length relaxation independently from the tape -- say for twenty minutes or so. It is good to do these longer relaxation exercises because they allow your body to achieve a deeper state of relaxation. Secondly, I am encouraging you to do relaxation on your own for say 3-5 minutes during the day

--, at lunch or during a break -- to begin to incorporate it more in your daily routine, to practice it more independently. And thirdly, I would like you to use the brief scan and release exercise throughout the day as often as you can. If you do it 100 times, that is great. Most people don't do it that often, but the idea is to do it as frequently as you can.

I'd also like to mention, since this is the last unit, where to go from here. In the future you can make use of any relaxation exercise or techniques that have been incorporated in the program. You can use the tapes as you desire. I would encourage you to practice more and more on your own and work without the tapes. Continue to use the scan and release exercises for at least for several weeks until they become a little bit more of a habit for you. If at any time in the future you find yourself backsliding in your ability to relax recycle through the tapes and exercises and use these as you see fit to help you brush up or reacquaint yourself with the relaxation techniques.

Now let me move on to the stress management procedures that were introduced in Unit 3 having to do with distorted or stress inducing thoughts or beliefs. I hope you had a chance to work with the worksheet. This is something that takes some effort but it is also something that can pay off for you in a much more

dramatic fashion than just trying to do it in your head. The worksheet forces a bit of discipline with respect to going through the analysis of thought and belief patterns. I'd like to mention that this type of stress management approach is one that is used a great deal by various psychologists and therapists for not only managing stress, but for dealing with problems such as anxiety and depression. It has been found to be a very effective and powerful set of procedures. It has also been found that the process of going through the worksheet, writing things down, is much more beneficial than trying to do it in your head.

One of the main purposes in using this set of procedures, which by the way are known as cognitive therapy techniques, is to increase your awareness of how you are reacting to various situations. We have been doing this with the relaxation exercises with respect to being more aware of our bodily reactions. What this cognitive set of techniques is intended to do is to make you more aware of how you are perceiving the various circumstances and situations you find yourself confronting in your life. Becoming aware and then going beyond that to evaluate your perspective, to evaluate how you think about that situation or what your attitude about that situation is. Then to begin to look for those areas that are a problem. Those areas where you are

exaggerating or blowing out of proportion your reactions. Where you are being too sensitive, where you are jumping to conclusions, or limiting your options by imposing excessive demands on yourself.

What people often find when they do this form of stress management, this analysis of dysfunctional thoughts and beliefs, is that intellectually they can see where certain thoughts or beliefs or attitudes are irrational, or are ineffective and maladaptive, or based on faulty assumptions or faulty logic. They can see those things, but even after they dispute the beliefs or replace them with something more appropriate, they don't feel much better. It's as if in their heart they really don't believe what they are telling themselves. This is okay -- a normal reaction. You are not going to change patterns of thinking or patterns of belief or attitudes that have been developed over a lifetime in a real short period of time. It takes some work and persistance. What you will find is that if you continue to work with it -- particularly those areas that keep popping up, those problem areas, those thoughts and beliefs that continually cause you stress -- as you keep working on them, those old beliefs and ways of thinking begin to loosen up a bit. And new, more adaptive, less stress inducing ways of looking at the situation slowly become more believable or more real to you. If you continually

challenge firmly held beliefs and thought patterns that cause you stress, you will make progress in truly changing them. The new, more adaptive, more effective ways of thinking about the situation will eventually become more natural to you.

In the Unit 4 manual, stress management is discussed a bit more and discussed in terms of coping skills. Coping skills simply refer to how we react to stress. Coping skills can be very poor or very good, and the idea of stress management is to improve one's coping skills. For our purposes, the coping skills have been broken down into two basic types: emotion-focused coping and problem-focused coping. The emotion-focused coping refers to how we deal with our internal response to a stressful situation or to a demand or challenge that confronts us. For example, relaxation, when used as a stress management technique, is an emotion-focused approach. It helps us gain control over our physical response to stress. It helps us relax which is in opposition to the stress response, the tensing we experience under stress. In other words, this helps us cope with our body's typical reaction to a stressful situation.

One of the important factors in emotion-focused coping is that it helps us get more in control of ourselves which, in turn, helps us deal more effectively with a situation. If we are very tense, anxious, or

frustrated, we are not in very good shape to deal with whatever it is that is confronting us at the time. So the emotion-focused techniques represent a very fundamental type of coping and a good place to start when one is trying to manage stress.

The cognitive techniques presented in the last unit also can be to a large extent emotion-focused. If you are changing your perception of the situation you are causing less of an emotional response to that situation. You are keeping in check the emotional or stress reaction that you experience.

The problem-focused coping refers to how we deal with the external environment. What we do with respect to the world around us, the decisions we make, and the way we interact with others. We run into problems if we do not exhibit the skills or behavior necessary to effectively deal with a situation. Here are a wide variety of things we may do to cope -- some good and some bad. Stress inducing ways of coping with the world, that is ways of coping that may not be very effective or efficient -- they include avoidance -- are some of the most common. Simply avoiding a problem or avoiding something that is stressful is common, but usually not very effective. On the other hand, being very aggressive, blowing up, overreacting, yelling, screaming, ranting or raving would represent another form of coping

that is ineffective or inefficient in most instances.

Let me talk briefly about avoidance. Avoidance can take different forms. Procrastination is a common form of avoidance where we simply put off something that we should do or need to do to take care of a problem. This often leads to bigger problems. If we are having financial difficulties, for example, and it is unpleasant to look at our bills, we might just put them in the corner and let them pile up -- and avoid them. They keep coming and eventually our debt, and therefore our problem, gets larger and larger. There are some instances where avoidance is useful. If you are walking down a path and you see a rattlesnake in front of you it might be best to avoid it and walk around it . In that case it might be an effective coping skill. However, many of the times we use avoidance, as in the case of not paying bills or not dealing with them, our problems simply grow bigger.

To improve one's problem-focused coping skills often requires changes very specific to the types of situations that cause us stress or trouble. These may be problems at work, problems with finances, problems with a marriage or in the family. They can be problems in any aspect in our life. The solutions can vary a great deal from one person to another so it is very difficult to give specify changes that would be applicable to a large number of

people. However, you can make use of the kinds of awareness that you are developing thus far in the program to help you improve your problem focus coping skills. A good place to begin is to take note of those situations which seem to be causing you a problems repeatedly. Use your emotional reactions, use your physical and emotional reactions as a cue to look around and ask what is causing this problem, what is the situation that brings this on. From that point you can take a look at how you are dealing with the situation, how it may be causing you problems and you can look for alternative ways of coping with it. Then comes the hard part -- actually changing the way you deal with things. If, for instance, you are avoiding something because it is frightening to you, it is naturally going to be difficult to change that pattern of behavior. I would suggest is that you try to deal with situations that are realistic for you to make changes in -- for you to set small goals, take small steps. And look for a gradual process of change. Don't try to alter your entire patterns of interacting with the world around you all at once. This will simply be overwhelming and will likely end in failure.

If you do begin to make small changes, this often results in improvements in how you feel about yourself. The problems begin to lessen somewhat and from this you can begin to move on to make bigger changes or the other

changes that may be necessary to get better control of the particular situation. If you are not sure of what the exact nature of the stressors that are present in your life or if you are not sure how to go about change, I would suggest at this point in time, to work with the dysfunctional thoughts and beliefs worksheet. You can continue with that for a few months and benefit more and more from that. What you are likely to find is that as your perspective changes on situations then the way you go about dealing with those situations begins to change also.

If you feel overwhelmed by various stresses in your life and unable to change them. Or if you feel that you may be suffering from a problem such as depression that is unmanageable on your own, then it may be worthwhile for you to consider getting some kind of professional help for that problem. Also, various classes and workshops on assertiveness training, conflict resolution, communication -- marital encounter workshops -- these kinds of things can be of potential value for someone trying to manage stress having to do with particular types of problems.

Within Unit 4 you are also provided with some information about other triggers including specific foods that are known to trigger headaches in certain individuals. These are discussed briefly in the manual

and there is a list of foods at the end that have been implicated as headache triggers for certain individuals. I do want to emphasize that although these foods do trigger headaches for certain people, most headache sufferers do not find certain foods cause headaches in them. With respect to the whole area of diet, there is one trigger that can provoke headaches in a large number of people and that is missing meals or going long periods without eating. This was mentioned early in the program and it deserves reemphasis here because it is something that tends to cause problems for people. As with certain other triggers, the identification of foods that may cause headaches requires some personal experimentation. Basically you have to keep an eye on things that you have eaten prior to the occurrence of a headache. Also when you eat one of the foods that is on the list, you want to make note if a headache has occurred. It is always good to keep a written record of these things because patterns may not emerge immediately. Don't go out and just eliminate every food on the list. Again, it is quite likely that you can eat all of the foods on the list and not have any problem, but the information is provided so that you can be observant for the potential role of these dietary triggers. If a food seems to be causing headaches, you can eliminate it from your diet and make note of any changes that occur after that. You may also

try to reintroduce it to your diet and if an increase in headaches occurs, this is further evidence that it is a food that you should not eat.

In the course of this headache self-management program a variety of techniques such as relaxation have been provided for controlling your headaches. Information and techniques for controlling stress have been presented, as well as general information about headaches, their headache triggers and how to identify them. All of the techniques and information have been of value to at least a portion of those who suffer from headaches. The majority of people who have used the combination of techniques presented in the program have substantially benefited from them.

Over the course of the next couple of weeks I would like you to work with the material specifically provided in Unit 4. After this, however, you will be more or less on your own to work with the kinds of techniques and procedures or information that seems to be most useful to you. Managing headaches using the various self-help procedures is something that typically results in gradual improvement. You may already be aware of this in terms of changes that are occurring in your own headache problem. I would suggest that in the future you review through the material and use those things that you feel are helpful to you or that you need to improve on -- make

use of the materials as you see fit. At the end of this unit is a list of headache triggers that cause or aggravate headaches. These vary from the foods to stress to hormones -- all the things that have been touched on. I would suggest that every month or so that you review this list and identify those areas that are still a potential problem for you. Make note of those and if there are several of them you may want to prioritize them and begin working on one or two of the areas. If, for example, you are working on looking at foods as a trigger, that is something that you can do on an ongoing basis. And you may eventually conclude that foods are not a problem and remove that from your suspected group of triggers or aggravating factors. Look through the list every once in a while. Have you made any progress or any changes with respect to the various types of triggers? The list can serve as something to help you review your progress and it can point to new directions or areas that you need to work more on.

I hope the program has been and continues to be of value to you and I wish you good luck in your efforts.

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