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Research Report 1544

Mediating Stress in Army Training: The Trainer Is the Critical Component

Thomas J. Thompson

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Research Report 1544

**Mediating Stress in Army Training:
The Trainer Is the Critical Component**

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FOREWORD

At the request of the Commanding General, U.S. Army Combined Arms Training Activity (CATA), the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) provided technical advisory service to the High Risk/High Stress Special Study Group. The Commanding General, Training and Doctrine Command (TRADOC), had given CATA the task of reviewing the Army's high risk/high stress courses to ensure that while training was as realistic as possible, it did not expose soldiers to unnecessary risk or impose undue pressure on the average student. ARI was asked to provide analytical support to the study group and to prepare a research report that reviewed stress in military training settings. The report would be used by the study group to support findings and anticipated recommendations.

ARI's Fort Benning Field Unit was able to respond immediately. The unit provided support to the study group in structuring field data collection, developing questionnaires, and in analyzing data provided by the U.S. Army Safety Center. In addition, a review of military training stress literature that included recommendations for enhancing Army training by mediating stressors felt by trainers was completed. It was posited that the Army trainer is the critical element to not only the delivery of quality training but to controlling risk and stress in training environments as well. The trainer can function more effectively if job-related stress is controlled.

This research was conducted as part of ARI's Light (Infantry) Forces Training and Performance Measurement Task, which is part of the Fort Benning Field Unit's research program. It was conducted under the Memorandum of Agreement established on 2 May 1988 between the Commanders of CATA and ARI. Briefings and the study group's final report were presented to the TRADOC Commander in April 1989 by CATA. This information has confirmed the high quality of training being provided to the soldier today and it will ensure that the U.S. Army continues to provide the finest training under appropriately realistic conditions.



EDGAR M. JOHNSON
Technical Director

**MEDIATING STRESS IN ARMY TRAINING:
THE TRAINER IS THE CRITICAL COMPONENT**

EXECUTIVE SUMMARY

Requirement:

In July 1988, the Commanding General, U.S. Army Training and Doctrine Command (TRADOC), directed the Commanding General, U.S. Army Combined Arms Training Activity (CATA), to review the Army's high risk/high stress training courses. The Commanding General, CATA, formed the High Risk/High Stress Special Study Group (HR/HS SSG), composed of training experts from within CATA and HQ TRADOC and safety and stress management experts from other agencies. The U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) was called upon to provide analytical support and training stress mediation and management expertise to the special study group at the request of the Commanding General, CATA.

Procedure:

The body of literature related to stress management and stress in military training and combat operations was reviewed for relevance to the HR/HS SSG mission. The purpose was to provide the study group with a better understanding of the role stress plays in training. ARI researchers also provided design and data management consultation to the CATA staff officers assigned to plan, develop, and conduct all data collection, encoding, and analyses in support of the HR/HS SSP as well.

*Reviewed: stress psychology
(1/89)*

Findings:

A comprehensive body of literature exists which has direct relevance to stress mediation and management in Army training. There is sufficient documentation of experimentally based work that can be used to determine not only the presence of stress but how to manipulate it as a training component.

A critical component to successful training is a confident and skilled instructor who must sense support from command leadership and to be effective, must not be personally overstressed. The instructor serves as a knowledgeable and mature role model for both the new soldier during initial entry training and for soldiers attending high risk specialized training. The Army has two excellent manuals that provide practical guidance for managing stress, FM 26-2 Management of Stress in Army Operations (1986) and FM 22-9 Soldier Performance in Continuous Operations (1983). These manuals, though not perfect, serve as a sound basis for developing an understanding of stress management in training.

Commanders are best able to reduce stress reactions in soldiers during training by mediating stressors faced by cadre. Drill Sergeants, instructors, and observer/controllers at combat training centers must be present in adequate numbers to avoid debilitating fatigue and be well trained and conditioned themselves. Being aware of stable and strong support from their leaders, they can serve as confident role models for the soldiers they must train. The key identified in the literature to mitigating unwanted stress reactions in training and in combat is to teach and strengthen effective coping mechanisms in cadre members and provide a supportive climate for training.

Utilization of Findings:

These findings were used by the HR/HS SSG to review the Army's training courses and to support summary recommendations in a report to the Commander, TRADOC, in April 1989. It was the conclusion of the study group in its report that high risk/high stress training in TRADOC does not expose students to unnecessary risk or impose undue pressure on the average student. However, a number of actions and followup are required to enhance the Army's school training programs, especially in the areas of safety and stress management. The study group is now dissolved; responsibility to monitor required actions has been passed to the Deputy Chief of Staff, Training, TRADOC.

**MEDIATING STRESS IN ARMY TRAINING:
THE TRAINER IS THE CRITICAL COMPONENT**

CONTENTS

	Page
INTRODUCTION	1
BACKGROUND LITERATURE	2
Stress Definition	3
Practical Application	3
A NEED TO EMPHASIZE CLEAR DEFINITIONS IN STRESS MANAGEMENT	3
Imprecise Usage	4
Stress or Arousal	4
STRESS INDICATION, PREVENTION, AND MEDIATION SOURCES	5
Indicators are Available	6
Prevention Methods	6
Leadership	7
Prevention and Mediation	7
MANIPULATING STRESSORS IN TRAINING	8
Task Overloading	8
Systematic Introduction Builds Resiliency	9
Expectancy	9
Stress Can Aid Fidelity	9
KEYS TO MEDIATING STRESS AND TRAINING RISK MANAGEMENT	10
Cohesion and Support	10
Primary Trainers are Critical Models	10
Training Emphasizes Leadership	11
Leaders Must Emphasize Support for Trainers	11
REFERENCES	13

MEDIATING STRESS IN ARMY TRAINING: THE TRAINER IS THE CRITICAL COMPONENT

INTRODUCTION

The Committee on Techniques for the Enhancement of Human Performance was formed in 1985 by the National Academy of Sciences at the request of the U.S. Army Research Institute (ARI) for the Behavioral and Social Sciences. ARI wanted examinations of certain extraordinary techniques which had received extensive press coverage and public support for claims of enhancing human performance (Druckman & Swets, 1988). The committee conducted comprehensive investigations into a variety of areas to determine the validity as well as utility to the Army's training programs for a variety of techniques that had a history of being marketed to business, education, and general public audiences. The primary reason for this extensive effort was to determine if there are better, faster, and more economical ways to train soldiers. The final product of this lengthy and detailed series of examinations, Enhancing Human Performance: Issues, Theories, and Techniques (Druckman & Swets, 1988), left room for further scientific investigation regarding some techniques, but in a broad sense it reinforced the old adage, "You get what you pay for". While some of the investigated techniques suggested limited utility under specific circumstances (given further investigation), the majority of the claims made by advocates and believers could not withstand scientific scrutiny.

The committee called for additional papers; some have been published as appendices (Druckman & Swets, 1988), and others have been used to provide specific background to aid the committee's investigations. Two background papers dealt extensively with the very common and rather popular topic of stress management. Seymour Levine of Stanford University submitted "Stress and Performance", and Raymond Novaco of the University of California, Irvine wrote a comprehensive paper entitled "Stress Reduction and the Military". It is not this author's intent to repeat what these scholars have prepared about stress and the relationship it has to the military. The reader is referred directly to the committee's findings and commentaries (Druckman & Swets, 1988) for a comprehensive presentation on stress. The presentations referenced consistently support the common models for coping skills development, planned stress inoculation (Meichenbaum, 1985), and stress management. In a general review of literature on stressors affecting soldiers in combat, it has been stated that all stress during training is mediated by the relationship soldiers have with those responsible for training (Kubala & Warnick, 1979). It is the premise of this paper that competent leaders and instructors with an understanding of stress reaction and training environment management techniques are the keys to mediating unwanted stress and reducing unnecessary risk during training.

Purpose of this report. This paper has been prepared to support the Commander, U.S. Army Combined Arms Training Activity's (CATA) investigation by the High Risk/High Stress Special Study Group (SSG) for the Commander, U.S. Army Training and Doctrine Command, and it will address the factor of stress inherent in training risk. Stress has an important function in Army training programs which, if properly designed and implemented by capable instructors, can help soldiers acquire and build stress

coping skills. However, according to Lazarus (1966), if improperly handled, stress reactions and anxiety can increase the risk of injury and death in training. Risk is increased when stress constricts a person's perceptual field by blocking cognitive acquisition and response performance by limiting attention and cues. It is the author's opinion that sufficient comprehensive literature exists to suggest that the U.S. Army, given command emphasis, has the capability to reduce the contribution of unwanted stressors to risk in many of its training programs. Whether the Army has the resources available to take advantage of this capability in every situation is another matter. The U.S. Army has an excellent reference document that provides effective guidelines and techniques in Management of Stress in Army Operations (FM 26-2, 1986) and that compliments another field manual, Soldier performance in Continuous Operations (FM 22-9, 1983). Application of the straightforward information provided in these field manuals will aid commanders and trainers to identify and manage stress. The critical key to achieving mastery over the stress component in high risk training is providing sufficient numbers of qualified leaders and trainers. The body of this paper will be used to review some of the supporting literature that substantiates the Army's views on stress management regarding combat and training. Ample research has been conducted to support the practical approaches advocated in Army doctrine.

BACKGROUND LITERATURE

An extensive and historically rich literature exists which is related to observations of stress reactions in military operational and training settings and which supports the U.S. Army's policies and guidance to commanders (Grinker & Spiegel, 1945; Ginzberg, 1959; Bourne, 1969; Stewart, Voors, Jenkins, Gutekunst, & Moldow, 1969; Poe, Rose, and Mason, 1970; Belenky, Tyner, & Sodetz, 1983; Novaco, Cook, & Sarason, 1983; Mulligan, Moskal, Driskell, & Abbott, 1988). Much of the literature has properly focused on the aftermath of combat in terms of immediate and delayed psychological and physiological stress reaction (Ginzberg, 1959; Bourne, 1970; Figley, 1978; Belenky et al., 1983). A comprehensive review of combat stress prior to 1980 was completed by Kubala and Warnick (1979) for ARI and served in support of the development of the Army's current stress management doctrine. An almost equally large and more germane body of literature directly addresses stress in a variety of training environments. Sufficient research projects from relatively comparable settings with Marine Corps and Army subjects have been documented to support a general comprehension of the effects of stressors in initial military training on trainees and instructors (Stewart et al., 1969; Kreuz, Rose, & Jennings, 1972; Novaco, Sarason, Robinson, & Cunningham, 1982) and to describe efforts used to manage stress during training (Beach, Prince, & Klugman, 1979; Burke, 1980; Novaco et al., 1983). Extensive reviews of stress and stress management literature have been conducted to provide supporting manuals to outline procedures for performance under the stressful conditions of continuous operations (Kubala & Warnick, 1979; Kopstein et al., 1982; FM 22-9, 1983; FM 26-2, 1986). Excerpts from many consistent research and field observation sources have been used to support the acceptance of methods for reducing unnecessary stressors in the training environment and to aid in identifying potential problems that could reduce training effectiveness if left unchanged (Kubala & Warnick, 1979).

Stress definition. In the Fifth Annual Report on Stress, edited by Selye and Heuser (1956), stress was defined straightforwardly as the sum of all nonspecific changes caused by function or damage. Selye (1956) further defined stress as the nonspecific response of the body to any demand made upon it. According to this definition, stress is fundamentally a physiologic response which drains energy or (for one response) reduces response capacity in an organism. This does not suggest that response capacity can not be increased or that coping mechanisms can not be strengthened. Management of Stress in Army Operations (1986) defines stress more simply as the body's response to a demand (stressor). Therefore stress reactions do not occur in a vacuum, but rather in relationship to (environmental) demands.

Scott (cited in Helmreich, 1970) defines stressful situations as "...situations in which adjustment is difficult or impossible but in which motivation is very strong." Variations in motivation have been held responsible for inconsistent results obtained in laboratory stress studies and for difficulty in translating such work to combat stress situations (Lazarus, Deese, & Osler, 1952). Selye (1956) has indicated that "emotional arousal is the most common cause of stress". While physiological arousal and the subsequent stress reactions in soldiers may be the observable problem, the systematic control of emotional arousal may prove pivotal to effective stress management.

Practical application. For practical applications in training settings, which by the very nature of the military environment are filled with stressors and are stressful--and should remain so for adequate combat preparation--concern must be given to specifically identifying and reducing unwanted stressors and maladaptive individual behaviors. Unwanted or counterproductive stressors in this case are those which contribute to stress reactions without substantiated reasons for being in the training program; they do not contribute to better training. Maladaptive individual behaviors are those which are undesirable from the standpoint of mission accomplishment and/or involve unnecessary personal risks (Kubala & Warnick, 1970).

Novaco and Vaux (1985) have presented a stress model that is supported by an existing body of compatible theories. This model is a very practical one for military training applications because it emphasizes the strong influence the newly encountered environment has on the individual. Encountering new and dynamic environments represents a core quality of military training. Novaco and Vaux postulate that stress constitutes a state of imbalance between the demands placed on the individual's system and the available resources (coping skills and energy) to counter the demands. Stress is further defined by relationships between environmental demands (stressors) and adverse health and behavioral consequences (stress reactions) resulting from exposure to those demands (Novaco & Vaux, 1985). The military training and combat literature has sufficient breadth and depth to provide practical insights regarding unwanted or unnecessary stress in Army training.

A NEED TO EMPHASIZE CLEAR DEFINITIONS IN STRESS MANAGEMENT

The Army's published doctrine and programs are well defined and are clearly substantiated by an adequate body of research. However, some misconceptions and crossed terminology continue to be used in both the Army and in the general public

view regarding stress and stress management. The Army has attempted to provide straightforward and consistent definitions of practical stress terminology to eliminate confusion and to facilitate appropriate application of the doctrine to training and operational environments (FM 26-2, 1986). Unfortunately, such efforts to have consistency are not always made in the public sector.

It is not uncommon to encounter erroneous applications of concepts and terms in the popular press or in presentations of stress management techniques. It is possible that well intended efforts by leaders to improve training through application of commercial techniques could make it difficult to maintain consistent quality in Army training programs. There is easy access to a wide variety of human enhancement information and techniques in the public sector, which the Army has investigated in detail, that could be used without achieving any real improvements in performance (Druckman & Swets, 1988). Blending well founded and doctrinally acceptable techniques with ideas that have yet to be proven scientifically to have merit could be counterproductive to military training and operations. The case for consistency in stress management clearly illustrates this point.

Stress management technology has qualified in recent years as part of a growth industry with the success of many related human performance enhancement programs which in some cases are largely based on extravagant claims and limited substantiating evidence (Druckman & Swets, 1988). In business and organizational training program presentations "stress management" has sometimes become a general or catch-all category, encompassing everything from measurable, psychophysiological events to descriptions of the entire scope of human unhappiness (Woolfolk & Lehrer, 1984). These programs sometimes mix a variety of stress management techniques which have no taxonomy nor follow a logical curriculum.

Imprecise usage. Many generalizations regarding stress and stress reactions have contributed to a reduction in understanding rather than to clarification and comprehension. Indeed, as medical and psychological literatures expand, a global definition of stress that satisfies all stress researchers is no closer to acceptance than in the past (Elliott & Eisdorfer, 1982). Nowhere has this become more noticeable than in the acceptance of the term "positive stress", used loosely to describe physiological arousal or activation (Hilgard & Bower, 1975). Some commercial stress reduction programs erroneously present positive stress in an inexact introduction to illustrate the contribution that "a little stress" makes in facilitating learning. The U.S. Army has contributed to ambiguity on occasion by using "eustress" as a term to indicate positive stress (DA Pamphlet 600-63-10, 1987). Army doctrine is clearer in FM 26-2 (1986), though it states that stressors can be positive or negative depending upon how the soldier perceives them. The implication is that a positive outcome defines the related stress or stressor as positive. Stress and stressors are not positive. The occurrence of stress reactions to stressors, however, can certainly stimulate positive behavioral responses that can be used to strengthen resistance to subsequent stressors. This seemingly small difference is critical and must be emphasized when teaching leaders and instructors that stress management is a rather delicate but useful two-edged sword.

Stress or arousal. What can be assumed by the use of the term positive stress is that reference is being made to the two part Yerkes-Dodson Law (1908) which depicts

arousal and performance in an inverted U relationship. In this relationship optimum arousal level for task performance varies inversely with difficulty. Possibly something similar to the phenomenon of measured improvements in retention observed approximately one hour after test animals have been exposed to stressors by Spear, Klein, & Riley (1971), as cited in Estes (1976), is being interpreted as a favorable stress condition as well. The concept of activation or arousal, which refers to the energy mobilization required for an organism to pursue its goals and meet its needs, is being confused in this sense with stress (Coleman, 1972).

The more recent work of one of the pioneer researchers into stress theory, Hans Selye (1976), has contributed to building a confusing dimensional rather than a succinct directional approach to illustrating stress reactions. As a result, one frequently hears about positive stress factors in presentations which only contribute ambiguity to comprehension by actually describing physiological arousal. It is upon a rather loose foundation that a great deal of the promised quick relief in stress management programs is based. It is as if a weekend training program (or less) and no other changes will enable one to overcome stress and continue to work under psychological pressure. A great deal of benefit can be gained from stress management if the techniques are presented, acquired, and used properly and regularly. Again, "you get what you pay for". Additional space could be given to belabor this point, but it is important to realize that stress reduction and conditioning require detailed planning and knowledgeable involvement for successful mediation and management. Once coping and management skills are learned, they must be applied and practiced. The techniques must be mastered to become structural components for effective life management rather than simply training program topics.

STRESS INDICATION, PREVENTION, AND MEDIATION SOURCES

Gathering performance measurements in field settings has proven to be difficult to do under stressful and rigorous training conditions (Burke, 1980). It is a more historically common research paradigm to compare post-stress performance measures with pre-stress performance measures (Kubala & Warnick, 1979), particularly under combat conditions. The Israeli Defense Force (IDF) is gathering a great amount of information regarding stress related casualties and is pioneering ways to enhance combat effectiveness through applied prevention and intervention techniques as a result. Some of the concepts have been applied in previous wars (World War II, Korea, Viet Nam) though the size and homogeneity of the IDF facilitates manageable research efforts. The IDF hopes to reduce combat psychiatric casualties by treating battle fatigue as quickly and as close to front lines as possible (Miller, 1982; Belenky et al., 1983). Findings from IDF research are consistent with U.S. Army findings (Belenky et al., 1983) and suggest useful applications to U.S. Army operational and training environments. The U.S. Army has published a series of pocket-sized cards (GTA 21-3-4, 1986; GTA 21-3-5, 1986; GTA 21-3-6, 1986) to aid soldiers and leaders in identifying and dealing with battle fatigue. Many of the topics and cues addressed in these aids have relevance to stress mediation in training as well as in combat and are consistent with other Army doctrine for stress management (FM 26-2, 1986). The available field manuals provide quick reference indicators of stress; they offer practical prevention techniques, and they provide guidance for using techniques which can effectively mitigate

stress reaction in both training and combat environments. For example, recognition and general acceptance that a unit can expect to incur unusually high sick call rates during anticipated stressful training is supported by records from combat experiences with similar circumstances (Beebe & DeBakey, 1952).

Indicators are available. Effective behavioral and environmental indicators of stress have been identified and listed in the results of a wide variety of reported research (Holmes & Rahe, 1967; Kopstein, et al., 1982; Belenky et al., 1983) and in summary publications designed for general military use (FM 22-9, 1983; FM 26-2, 1986). Some have primarily focused on external (environmental) stressors which contribute to either acute or chronic emotional stress reaction (Holmes & Rahe, 1967) which may not be evident to other people during limited or casual observations. Other indicators emphasize more recognizable physiological stress indicators in individual and group behavior to bring the attention of leaders to more obvious problems (FM 22-9, 1983; FM 26-2, 1983). Reference to these sources is not meant to suggest that any listed factors are completely inclusive or appropriate for all situations. They certainly represent a compilation of enough information to allow Army leaders to intervene effectively when unnecessary stress is identified in training and combat.

Stressors, themselves, in all cases detract from individual and group performance capabilities unless some counteractive conditioning has taken place. This conditioning is an important part of military training. It must be emphasized that stressors do not influence the individual in a vacuum. They are factors in a very complex environment where positive individual and group behaviors can be obtained and strengthened by introducing appropriate stressors. Probably the most practical approach to presenting useful stress indicators was compiled by Kopstein et al. (1982), replicated in FM 22-9 (1983), and defined and expanded to include helpful behavioral indicators of stress in FM 26-2 (1986). In Management of Stress in Army Operations (FM 26-2, 1983), three appendices presented excellent descriptive definitions of stress indicators for assessing oneself, others, and a military unit (of almost any size). This material became a chapter in the revised field manual and is brief, clear, and behaviorally oriented; it allows the user to assess unit or individual conditions for performance degradation due to stress (FM 26-2, 1986).

Prevention methods. A wide variety of stress prevention programs has been in use in clinical settings, and they have taken different theoretical and applied approaches to the prevention and reduction of stress reactions. Research has shown that under different conditions and in different settings one technique may be more effective and favored over another. Behavior modeling (Goldstein & Sorcher, 1974; Bandura, 1977) has been shown to mitigate the contribution of stress during skill acquisition when the task to be mastered can be clearly illustrated prior to practice (Mulligan et al., 1988). Advocates of cognitive-behavioral approaches have built programs upon the work of Ellis (1962) and Beck (1976). Early work by Meichenbaum (1977) and others led to the evolution of the concept of stress inoculation (Meichenbaum, 1985). Stress inoculation is originally a clinically based concept which slowly and/or systematically submits individuals to increasing controlled exposures of stress. The intent is to exercise and strengthen previously acquired coping skills through successively more stressful exposures without overwhelming the individual's resources. Though the terminology is new, the concept certainly is not. S. L. A. Marshall (1947) described the process of "seasoning"

from World War II experiences as troops learning to do something well instead of doing it badly. He linked the development of unit cohesion during adversity (training or operational) as a critical factor in improving individual performance and confidence. Group experience, according to Marshall, build progressive strenghs and resistance to adversity.

Lazarus and Folkman (1984) have suggested that less inclusive or less flexible cognitive-behavioral approaches are not amenable to all stressful situations and have offered alternative techniques for developing behavioral coping skills and strategies. Their work and Meichenbaum's (1985) support an effective practical approach that includes the effective components of many models. Some of the most practical and useful methods blend a variety of theories and techniques for military application (Kopstein et al., 1982). In contrast, techniques grounded primarily in the cognitive domain, i.e., relaxation techniques, imagery, etc., may not be as effective in dynamic, active, and dangerous military settings as they might be in more stable settings where performance expectations can be anticipated and less demanding. The core components of many of these approaches and others which have demonstrated utility have been incorporated in practical Army doctrine for use in stress reduction as well as prevention (FM 22-9, 1983; FM 26-2, 1986).

Leadership. Not all of the most appropriate prevention components have come from medical and clinical psychology settings. Common military principles, such as consistently fair and firm leadership, have proven to be critical in preventing and mediating soldier stress (Mangelsdorff, 1980). The natural potential for teamwork within a unit where soldiers know what to expect of one another can be used to mitigate stress reaction in dynamic training and combat environments (Malone, 1988). The principles of good leadership are time proven military tenets that can be applied by commanders and leaders to effectively prevent and reduce stress during training and combat.

The field manuals that were developed to address stress and continuous operations do not present lengthy conceptual and theoretical backgrounds, particularly for the stress management techniques, but they do address the basic information necessary for implementation by Army personnel in the field. The opportunity remains to take issue with some of the published techniques by using citations of countering research findings or indeed by citing the paucity of supporting research to substantiate the efficacy of the approaches in some cases. This more meaningfully suggests that the opportunity exists for continued research to answer specific questions rather than to reject the available information. The Army appropriately decided that at some point practical matters must outweigh the continual effort to develop a more complete research base for stress management techniques. This does not negate future opportunities or requirements for meaningful stress research in military training and operational settings.

Prevention and mediation. Many prevention factors also serve as effective mediators under stressful conditions. Identified mediators of stress in military settings have varying research support bases. Additional key factors that mediate or contribute to reduced levels of unwanted stress in initial entry training include identity development with a group, effective leadership, and appropriate physical and mental conditioning and training. The value of group identification in combat has been recorded from

observations from World War II through recent Israeli combat experiences in 1982 (Garner, 1945; Glass, 1953; Bourne, 1969; Belenky et al., 1983). In an Army study which addressed the value of a social support structure in the military, Manning and Fullerton (1988) determined that the unique ability to develop strong unit cohesion within Special Forces A-Detachments contributed significantly to individual physical and emotional well-being. Good leadership has been identified as a critical mediator of stress, but it provides the additional benefit of contributing to the development of group identity and cohesion in military units (Grinker & Spiegel, 1945; Belenky et al, 1983). Effective leadership includes keeping soldiers informed and introducing realistic expectations prior to training and combat operations (FM 26-2, 1983). Quality training with adequate skill introduction, practice, and reinforcement builds confidence (mitigates stress) and is a critical supporting factor to continued task performance under stressful conditions (Miller, 1951). Miller states that: "Knowing exactly what to expect reduces fear." Appropriate application of leadership principles interplays with the delicate motivation balance in the individual. The trainer, or drill sergeant, can provide sufficient supporting comments (relief) to allow soldiers to overcome their fear of a difficult or seemingly dangerous task. The drill sergeant may also touch soldiers' desire for success enough to have them risk the disappointment of failure. The leader can use the intensity and quality dimensions of motivational theory (Mowrer, 1960) to facilitate learning and to build resiliency in soldiers.

MANIPULATING STRESSORS IN TRAINING

S. L. A. Marshall (1947) stated that: "Battle morale comes from unity more than from all else, and it will rise and fall in the measure that unity is felt by the ranks." Recent research supports the soundness of this assertion by S. L. A. Marshall and points to well documented difficulties in recovery from posttraumatic stress reaction that have been attributed to limited or poor unit cohesion (Steiner & Neumann, 1982; Belenky et al., 1983). Some level of uncertainty of expectations and concern about ability to succeed at assigned training tasks is felt by individuals, particularly in a new environment which promises unknown challenges and where everyone is a stranger. The development of unit cohesion is one of the key benefits to the individual and to the Army obtained during successful initial entry training. The individual learns through experience that bonding to the unit increases comfort and reduces uncertainty. It would be most inappropriate to think that stress factors should be removed completely since the purpose of military training is to develop skills in soldiers and to have them operate effectively in dangerous and stressful environments. Stress factors, when controlled, can be used to reinforce group bonding. It is the responsibility of trainers to control and manipulate the amount of stress felt by students to enhance rather than hinder training objectives.

Task overloading. Unwanted and unnecessary stress can be mitigated rather easily. Excessive demands or task multiplicity and complexity (task overloading) as well as unpredictable and/or intense situations that contribute distractions reduce the capacity of the individual to maintain attention (Cohen, 1978). According to Cohen, the individual begins to suffer from cognitive fatigue and begins to establish selective performance priorities even if no priority has been previously established. FM 22-9 (1983) mentions that soldiers who are physically or emotionally fatigued or stressed will

begin to neglect tasks that do not require specific responses. For example, fire direction center personnel might easily fall behind on mission log or overlay preparations which are not constantly monitored while they would continue to respond to requested fire missions. Teaching soldiers (and leaders) to establish and properly assess behavioral priorities during continuous operations training would be helpful in mediating the effects of stress reactions and fatigue.

Systematic introduction builds resiliency. Uncertainty and task overloading are common in continuous military operations. They can be introduced gradually in training once primary military skills and conditioning have been acquired through training and mastered through practice and drill. Stress inoculation procedures (Meichenbaum, 1985) can be integrated into a training program rather easily by narrowing the range of acceptable performance standards of a task with each practice repetition. Many computer aided training programs use this approach. This can be illustrated with the Multiple Arcade Combat Simulator (MACS) marksmanship training system. Once initial performance standards for engaging a single target display are met, it is common on subsequent tasks to either reduce the time available to engage the target or to add multiple targets to the training scenario (Evans, 1988). Another method is to increase cognitive loading by adding attention distractors during timed or precision performances as a given behavioral task is mastered. This is not uncommon in aviation training. For example, while a pilot is flying a precision instrument approach the instructor may induce distracting emergency situations. The pilot must attend to the emergencies quickly and effectively while continuing to perform the precision flying task. Trainers can begin to account for the contribution of stress to training risk and use it if the designers of programs of instruction systematically consider task load levels.

Expectancy. The environmental stress component can be mitigated by anticipating and meeting student expectations. Accurate and timely training schedules which present information that enable students to prepare for class and field instruction reduce uncertainty. Expectancy, as a planned program variable, can be used to increase uncertainty in training. Uncertainty can be used deliberately to determine a soldier's ability to perform his assigned mission when guidance is vague or nonexistent.

Stress can aid fidelity. Knowledge of the debilitating effects of stress reactions can be used to increase the realism and validity of training (Kern, 1966). Both extreme task loading and the absence of reliable information to meet soldier expectations have been used effectively in training programs (i.e., Ranger Training; Special Forces Orientation and Training Program, Assessment and Selection Phase) with the program objective being to determine individual commitment and capabilities under physically and emotionally fatiguing conditions. The designers of these programs have planned the use of stressors as active components in making training approximate the anticipated rigors and uncertainty of combat. The effective incorporation of stressors in training (inoculation) is critical to minimizing emotional trauma in future combat. It is the responsibility of each trainer to know the role of stress mitigation and the role of stress induction and accentuation to maximize training fidelity. Awareness of individual (self and others) and unit stress reaction behavioral indicators can be gained by using FM 22-9 (1983) and FM 26-2 (1986). Drill Sergeants, instructors, and observer/controllers at the Combat Training Centers can contribute to safer, higher fidelity training by becoming familiar with the materials presented in these publications. These field

manuals used as part of instructor training can contribute to more meaningful and rigorous training for initial entry soldiers.

KEYS TO MEDIATING STRESS AND TRAINING RISK MANAGEMENT

Knowing how to manage and use stress in Army training programs is no great mystery. Doing so is not as easy. Studies within military training environments with Marine Corps Drill Instructors (Novaco et al., 1983) and Army Drill Sergeants (Fullerton, 1984) reveal interesting insights into the stress felt by the very people tasked with providing critical initial military socialization and training to new recruits. The proper identification and preparation of leaders and instructors is critical. The quality training and subsequent command support that instructors receive are critical to encouraging them to maintain reduced and manageable personal stress and fatigue levels.

Cohesion and support. Fullerton (1984) conducted a comparative study measuring the relative positive sense of well-being felt by representative samples from four diverse Army populations. Two stood out as having reported significantly different perceptions of emotional and physical well-being. Special Forces A-Detachment members who had strong group cohesion reported a more positive sense of well-being compared to a sample of basic training drill sergeants. The drill sergeants reported low work group support (poor group cohesion), lack of control, extended duty hours, and mental distractions caused by constant performance evaluations as contributors to poor physical and emotional well-being. The contribution of workload to stress in drill sergeants has been reported by Marine Corps drill instructors also. In one of numerous joint studies, Cook, Novaco, and Sarason (1982) asserted that the training environment established by the drill instructor becomes a critical determining factor in recruit attrition, adjustment (socialization), and duty performance. The importance of maintaining the well-being of the Marine Corps' drill instructors and the Army's drill sergeants must be understood in the context of the lasting influence these people have on recruit adjustment and performance in the service.

Primary trainers are critical models. It is difficult to overemphasize the influence that drill sergeants (and instructors) have on the socialization and future performance of initial entry soldiers. Bandura's theory of behavior modeling (1977) has critical relevance to drill sergeants' behavior since these people ensure proper socialization of soldiers during initial entry training. The drill sergeant must serve as an almost perfect model since he or she guides the new soldier through the initial physical and emotional challenges of transition from the familiar civilian to the unknown military culture. Research evidence suggests that instructors who model a firm but fair approach in meeting their responsibilities to new recruits are more likely to produce better adjusted and trained soldiers than those who appear either inconsistent or excessive and abusive (Cook et al., 1982). Bourne (1967) saw the process of acculturation to the military as a period of forced change where skills are acquired that ensure survival and successful adaptation under adverse circumstances. Steinberg and Durell (1968) found the initial few months of service time to be the most demanding for social adaptation and to be psychologically stressful. It is of paramount importance to ensure that drill sergeants and instructors are not only the most appropriate people assigned to this duty in terms

of personality and temperament, but also they must have the best training and support to ensure their continued well-being.

Training emphasizes leadership. Drill sergeant training in both the Army and the Marine Corps focus on the development of positive leadership styles which are more easily modeled and maintained under conditions where stress is limited. Fullerton's work (1984) suggests that the military training environment typically fails to reveal encouragement or provide support to the people who are most crucial to the development of physically and emotionally stable soldiers, the drill sergeants and instructors. The same factors that are associated with either a sense of well-being or with stress reaction based maladaptive behaviors in every other soldier are also applicable to drill sergeants. The association with drill sergeants may indeed be stronger because of the additional responsibilities they carry.

Leaders must emphasize support for trainers. Drill sergeants and instructors charged with the responsibility to socialize and train the Army's soldiers deserve and must have a strong sense of group identification (cohesion), supportive leadership and training, and realistic expectations and workloads. Unchallenged stressors encountered by drill sergeants and instructors certainly do nothing but degrade their ability to perform their primary duties. Longitudinal research with Marine Corps subjects by Novaco, Sarason, Robinson, and Cunningham (1982) has revealed that stress levels escalate significantly as a function of length of time as an instructor and that performance evaluations are inversely related to duty (position) stress. Drill instructors (and Army drill sergeants) who are manifesting stress reactions themselves are, therefore, not the most effective role models and trainers. If command emphasis is to be used anywhere, it must at least include proper support to (and numbers of) the professional noncommissioned officers who are training the Army's new soldiers.

References

- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavior change. Psychological Review, 84, 191-215.
- Beach, J., Prince, H., & Klugman, P. J. (1977). Stress management in two divergent military training settings. Paper presented at the 85th Annual Convention of the American Psychological Association, San Francisco.
- Belenky, G. L., Tyner, C. F., & Sodetz, F. J. (1983). Israeli battle shock casualties: 1973 and 1982 (Report WRAIR NP-83-4). Washington, DC: Walter Reed Institute of Research.
- Beck, A. T. (1976). Cognitive therapy and the emotional disorders. New York: International Universities Press.
- Beebe, G. W. & DeBakey, M. E. (1952). Battle casualties-incidence mortality, and logistic considerations. Springfield, IL: Charles C. Thomas.
- Bourne, P. (1967). Some observations on the psychosocial phenomena seen in basic training. Psychiatry, 30, 187-196.
- Bourne, P. (1969). The psychology and physiology of stress. New York: Academic Press.
- Bourne, P. (1970). Men, stress and Vietnam. Boston: Little, Brown, & Company.
- Burke, W. P. (1980). An experimental evaluation of stress-management training for the airborne soldier (Technical Report 550). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (ADA 126 621)
- Cohen, S. (1978). Environmental load and the allocation of attention. In A. Baum, J. E. Singer, & S. Valins (Eds.), Advances in environmental psychology. Vol. 1. Hillsdale, NJ: Erlbaum & Associates.
- Coleman, J. C. (Broen, W. E., Jr. [Contributing]) (1972). Abnormal psychology and modern life. Glenview, IL: Scott, Foresman and Company.
- Cook, T., Novaco, R. W., & Sarason, I. G. (1982). Military recruit training as an environmental context affecting expectancies for control of reinforcement. Cognitive Therapy and Research, 6, 409-427.
- Department of the Army. (1983). Battle fatigue, normal, common signs what to do fo self & buddy (GTA 21-3-4). Washington, DC: Author
- Department of the Army. (1983). Battle fatigue, "more serious" signs; leader actions (GTA 21-3-5). Washington, DC: Author.

- Department of the Army. (1983). Battle fatigue, company leader actions & prevention (GTA 21-3-6). Washington, DC: Author.
- Department of the Army. (1983). Management of stress in army operations (FM 26-2). Washington, DC: Author.
- Department of the Army. (1986). Management of stress in army operations (FM 26-2) (rev. ed.). Washington, DC: Author.
- Department of the Army. (1983). Soldier performance in continuous operations (FM 22-9). Washington, DC: Author.
- Department of the Army. (1987). Fit to win, stress management (Pamphlet 600-63-10). The Army Health Promotion Program. Washington, DC: Author
- Druckman D., & Swets, J. A. (Eds.). (1988). Enhancing human performance, issues, theories, and techniques. Washington, DC: National Academy Press.
- Elliott, G. R., & Eisdorfer, C. (1982). Stress and human health. New York: Springer.
- Ellis, A. (1962). Reason and emotion in psychotherapy. New York: Stuart.
- Estes, W. K. (Ed.). (1976). Handbook of learning and cognitive processes, Volume 4, attention and memory. Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.
- Evans, K. L. (1988). Development and evaluation of the multipurpose arcade combat simulator (MACS): A research summary (ARI Research Report 1488). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD B130 099)
- Figley, C. R. (1978). Stress disorders among Vietnam veterans: Theory, research, and treatment. New York: Brunner/Mazel.
- Fullerton, T. D. (1984). Comparing well-being and stress of several high risk army groups. Unpublished manuscript from Walter Reed Army Institute for Research.
- Gardner, H. H. (1945). Psychiatric casualties in combat. War Medicine, Vol. 8, 343-357.
- Ginzberg, E. (1959). Patterns of performance. New York: Columbia University Press.
- Glass, A. J. (March, 1953). The problem of stress in the combat zone. Symposium on Stress. Walter Reed Army Medical Center, Washington, DC.

- Goldstein, A. P., & Sorcher, M. (1974). Changing supervisory behavior. New York: Pergamon Press.
- Grinker, R. R., & Spiegel, J. P. (1945). Men under stress. Philadelphia, PA: Blakiston.
- Helmreich, R. L. (1970). Human reaction to psychological stress, stress, self-esteem and attitudes (Technical Report No. 12). Austin, TX: University of Texas.
- Hilgard, E. R., & Bower, G. H. (1975). Theories of learning (4th ed.). Englewood Cliffs, NJ: Prentice-Hall, Inc.
- Holmes, T. H., & Rahe, R. H. (1967). The social readjustment rating scale. Journal of Psychosomatic Research, 11, 213-218.
- Kern, R. P. (1966). A conceptual model of behavior under stress, with implications for combat training (HumRRO Technical Report 66-12). Washington, DC: George Washington University, Human Resources Research Office.
- Kopstein, F., Siegel, A., Ozkaptan, H., Dyer, F., Conn, J., Slifer, W., and Caviness, J. (1982). Soldier performance in continuous operations. (Research Note 85-68. Alexandria, VA U.S. Army Research Institute for the Behavioral and Social Sciences. (ADA 160 470)
- Kreuz, L., Rose, R., & Jennings, J.R. (1972). Suppression of plasma testosterone levels and psychological stress. Archives of General Psychiatry, 26, 479-482.
- Kubala, A. L., & Warnick, W. L. (1979). A review of selected literature on stresses affecting soldiers in combat (Technical Report TR-79-A14). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (ADA 071 115)
- Lazarus, R. S. (1966). Psychological stress and the coping process. New York: McGraw-Hill.
- Lazarus, R. S., Deese, J. E., & Osler, S. F. (1952). The effects of psychological stress upon performance. Psychological Bulletin, 49(4), Part I.
- Lazarus, R. S., & Folkman, S. (1984). Stress, appraisal, and coping. New York: Springer Publishing Company.

- Malone, D. M. (1988). With the mountain men: Co-operation and competition within the context of cohort (Research Report 1482). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (ADA 200 100)
- Mangelsdorff, A. D. (1980, October). Stress reaction of military personnel. Proceedings of the AMEDD Psychology Symposium (pp. 207-214). Washington, DC: Walter Reed Army Medical Center. (AD-P004 085).
- Manning, F. J., & Fullerton, T. D. (1988). Health and well-being in highly cohesive units of the U.S. Army. Journal of Applied Social Psychology, 18, 6, 503-519.
- Marshall, S. L. A. (1947). Men against fire. New York: William Morrow & Company.
- Meichenbaum, D. (1977). Cognitive-behavior modification. New York: Plenum Press.
- Meichenbaum, D. (1985). Stress inoculation training. New York: Pergamon Press.
- Miller, J. A. (1982, November). Combat stress reactions occurring in the Israeli defense force during the Lebanon conflict of 1982. Proceedings of the AMEDD Psychology Symposium: Multiple Functions and Challenges (pp. 477-501). Fort Sam Houston, TX: Army Health Services Command. (AD-P003995).
- Miller, N. E. (1951, June). Fear and courage in training and combat. Prepared for the Working Group on Human Behavior Under Conditions of Military Service. Washington, DC: Department of Defense Research and Development Board.
- Mowrer, O. H. (1960). Learning theory and behavior. New York: John Wiley & Sons, Inc.
- Mulligan, C. P., Moskal, P. J., Driskell, J. E., & Abbott, D. W. (1988, August). Training for performance under stress: A behavioral modeling approach. Paper presented at the 96th Annual Convention of the American Psychological Association, Atlanta, GA.
- Novaco, R. W., Cook, T. M., & Sarason, I. J. (1983). Military recruit training: An arena for stress coping skills. In D. Meichenbaum & M. Jaremko. (Eds.), Stress reduction and prevention. New York: Plenum Press.
- Novaco, R. W., Sarason, I. G., Robinson, G., & Cunningham, F. (1982). Longitudinal analyses of stress and performance among Marine Corps drill instructors. Washington, DC: Office of Naval Research.

- Novaco, R. W., & Vauz, A. (1985). Human stress: A theoretical model for the community-oriented investigator. In E. Susskind & D. Klein (Eds.), Community research. New York: Praeger.
- Poe, R., Rose, R., & Mason, J. (1970). Multiple determinants of 17-hydroxycorticosteroid excretion in recruits during basic training. Psychosomatic Medicine, 32, 369-378.
- Sarason, I. G., Novaco, R. W., Robinson, G., & Cook, T. (1981). Recruit attrition and the training unit environment. Washington, DC: Office of Naval Research.
- Scott, J. P. (1949). Relative importance of social and hereditary factors in life adjustment during periods of stress in laboratory animals. Life Stress and Bodily Disease. Association for Research in Nervous Mental Disease.
- Selye, H. (1956). The stress of life. New York: McGraw-Hill.
- Selye, H. (1976). The stress of life (rev. ed.). New York: McGraw-Hill.
- Selye, H. (Ed.). (1980). Selye's guide to stress research, Vol. 1. New York: Van Nostrand Reinhold.
- Selye, H., & Heuser, G. (Eds.). (1956). Fifth annual report on stress 1955-56. New York: MD Publications, Inc.
- Spear, N. E., Klein, S. B., & Riley, E. P. (1971). The kamin effect as "state-dependent" learning: Memory retrieval failure in the rat. Journal of Comparative and Physiological Psychology, 74, 416-425.
- Steinberg, H. R., & Durell, J. (1968). A stressful social situation as a precipitant of schizophrenic symptoms: An epidemiological study. British Journal of Psychiatry, 114, 1097-1105.
- Steiner, M., & Neumann, M. (1982). War neuroses and social support. In N. Milgram (Ed.), Stress and anxiety, Vol. 8. Washington, DC: Hemisphere.
- Stewart, G. T., Voors, A. W., Jenkins, C. D., Gutekunst, R. R., & Moldow, C. F. (1969). Determinants of sickness in marine recruits. American Journal of Epidemiology, 89, 254-263.
- Woolfolk, R. L., & Lehrer, P. M. (Eds.). (1984). Principles and practice of stress management. New York: The Guilford Press.
- Yerkes, R. M., & Dodson, J. D. (1908). The relationship of strength of stimulus to rapidity of habit-formation. Journal of Comparative Neurology and Psychology, 18, 459-482.