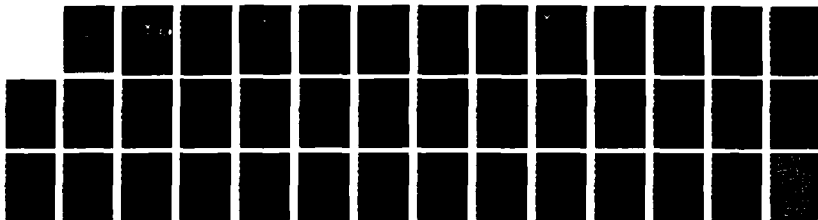


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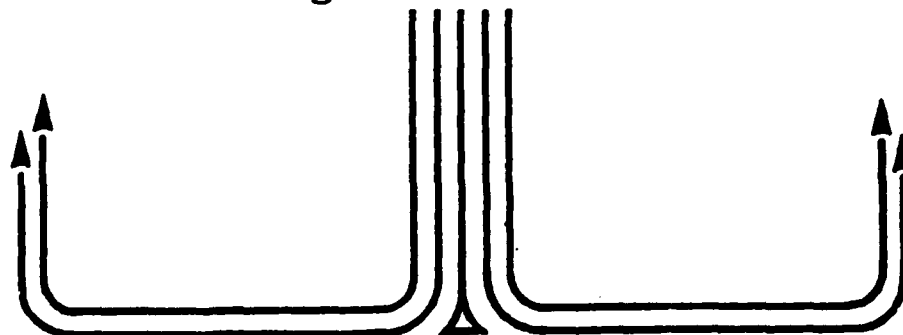
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STUDENT REPORT

STRESS AND THE MILITARY PILOT

MAJOR SIDNEY K. BARWICK 88-0230

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REPORT NUMBER
TITLE

88-0230

STRESS AND THE MILITARY PILOT

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TROY STATE UNIVERSITY

**Submitted to the faculty in partial fulfillment of
requirements for graduation.**

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PREFACE

This project is an expansion of a thesis (candidacy paper) presented to the faculty of the Graduate Division of Troy State University. The paper (found in the appendix) was submitted as evidence of ability to prepare a research report and partial fulfillment of the requirements for the Degree Masters of Science in Counseling and Human Development. The requirements of the candidacy paper limited the focus to research methods. Therefore, this addendum expands on the thesis to provide more detailed conclusions and recommendations.

① Stress and its effects on military pilots is a subject where the author's personal experience has indicated a need for increased knowledge. Understanding and controlling the stress that affect the military pilot will help improve safety and combat effectiveness. If the pilot and supervisor insure that the mind is ready for each mission, then the Air Force will log more landings per take-off. In combat, stress disorders are treatable if recognized early and treated correctly. Proper treatment will help assure combat missions will not be lost to the psychological effects of war. In the thesis, the author translated the preventions, recognition, and treatments for ground combatant stress directly to the military pilot population. Additionally, posttraumatic stress is addressed with the hope of finding ways to reduce or prevent it.

The author gives a special thanks to his wife, Sherry, for cheerleading and all those "this doesn't make sense" comments and to his children for giving up all that good computer time.

Keywords: stress (psychology); aviation; safety; pilots



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ABOUT THE AUTHOR

Major Sidney Kent Barwick received his Bachelor of Science Degree in 1974 from Iowa State University, Ames, Iowa and received a reserve commission upon graduation. He was an Outstanding Graduate of the last undergraduate pilot training class to receive their wings at Moody AFB, Georgia. After being named Top Graduate from Pilot Instructor Training at Randolph AFB, Texas, he served as a T-38 Instructor Pilot, Upgrade Runway Supervisory Unit Controller, Flight Examiner, Faculty Board Member, and Wing Scheduling Officer at Columbus AFB, Mississippi. In 1980 Major Barwick graduated Top Pilot in his A-10 training class and was assigned to RAF Bentwaters U.K. where he served as Squadron Life Support Officer and Wing Scheduling Officer for the largest fighter wing in the Air Force. He returned from overseas to Laughlin AFB where he was assigned as a T-37 Instructor Pilot. While at Laughlin he held positions as Flight Commander, Chief Check Section, Progress Check Pilot, Faculty Board Member, and Supervisor of Flying. In 1986, he was selected as Chief T-37 Standardization and Evaluation Branch. He completed the Squadron Officer School residence and the Air Command and Staff College correspondence courses. Major Barwick is enrolled in the Counseling and Human Development Masters Degree program at Troy State University Montgomery and will graduate in June 1988.

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EXECUTIVE SUMMARY



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REPORT NUMBER 88-0230

AUTHOR(S) MAJOR SIDNEY K. BARWICK, USAF

TITLE STRESS AND THE MILITARY PILOT

I. Purpose: To identify causes, prevention, and treatment relating to stresses that act on the military pilot and to provide a basis of understanding through which safety and combat effectiveness can be improved.

II. Problem: Although pilot stress receives attention in safety material, the application of such knowledge has at times been limited. Combat stress has received much needed attention, however the application of this knowledge for the military pilot needs to be derived from current studies. How can military pilots and their supervisors reduce peacetime, combat, and postcombat stress? What value will this reduced stress have?

CONTINUED

III. Data: The stress military pilots experience during peacetime is much the same as any other profession. The major difference is stress has been directly linked to aircraft mishaps and therefore can be fatal even when present at levels that would not normally be physically harmful. Morale and group identity are two important organizational factors that can help reduce stress. Combat stress has been studied recently in the conflicts fought by the Israelis. The results have shown proximity, immediacy, and expectancy as key factors in the treatment of combat stress and the reduction of posttraumatic stress. Additionally, unit bonding and esprit de corps were key in combat stress prevention. Where prevention and treatment were effective, the combatant was returned to combat in a short period of time. Soviet doctrine indicates the importance of USAF preparation because it calls for the use of shock to render enemy survivors immobile and therefore is an important factor in achieving Victory.

IV. Conclusions: Pilot and supervisor awareness and concern for the individual and the unit are key in preventing and treating stress. This reduction in stress will reduce safety mishaps and improve combat effectiveness. Strong unit bonding and high morale can reduce stress both in peacetime and in combat. When prevention fails, stress-coping techniques can reduce the effects of stress. Combat stress will be something new for most pilots. However, it is treatable if recognized early and treated correctly. The pilot and supervisor can help prevent posttraumatic stress disorder. Increased emphasis on reducing pilot stress will be directly translated into improved safety margins and combat effectiveness.

V. Recommendations: The United States Air Force must increase training for pilots and supervisors in prevention, recognition, and treatment of stress. HQ USAF needs to study the treatment of combat stress with regard to specific applications for the pilot force. USAF should consider the impact of flying unit morale when making policy.

Chapter One

INTRODUCTION

At an Undergraduate Pilot Training Base, a junior instructor pilot (IP) suddenly came to the realization that his wife was having an affair with one of his students and wanted a divorce. That young officer, not fully understanding the stresses acting on him, realized he could not keep his mind on the flying mission. He went to his flying supervisor requesting to be relieved of his flight duties until he could mentally come to grips with the situation. That supervisor did not understand or chose to ignore the possible effects of stress for his answer was "If the Air Force wanted you to have a wife, they would have issued you one. Request denied." Fortunately, the young flying officer realized he should not fly and refused to follow those orders. Instead, he went to the Squadron Commander where he found someone who understood the gravity of the situation. He excused the IP from flight duties and suggested a visit to the base chaplain or someone who could provide counseling (6:--).

That young officer is the author and this situation is the driving force behind how he developed his interest in stress and its effects. As surprising as it may seem, with all of the topics on stress published in various safety materials, the author has seen many other cases where flying officers were expected to be superhuman and not be affected by stress.

The author chose his thesis subject because he believes all flying personnel and supervisors must increase their understanding of stress. Additionally, he has never experienced combat and wants to be prepared if and when that time comes. Combat stress takes on new dimensions and presents special problems both during and after the conflict. A better understanding of stress and its effects could improve safety and combat effectiveness.

All officers in the USAF must do what is necessary to further the abilities of their nation to deter or win conflicts. Knowledge is the best defense for stress that "is an elusive concept, a force much like gravity in that we infer its presence by observing its effects" (3:19). However, if they wait for an accident to happen or lose their pilots to combat stress, then they have failed before the fight.

Chapter Two

PERSPECTIVES AND DATA

The thesis presented to the faculty of the Graduate Division of Troy State University for partial fulfillment of the requirements for the Degree Masters of Science in Counseling and Human Development is Appendix One. In this Thesis, the author researched material published within the last five years that deals with military pilot stress and combat stress. The information is presented in three time frames: A) peace, B) combat, and C) post combat. Most of the information on combat stress was derived from recent studies of ground combatant stress not military pilots as a separate population. Masculine gender pronouns were used in the thesis for simplicity.

Chapter Three

CONCLUSIONS AND RECOMMENDATIONS

Any flying unit that wants to reduce safety mishaps and improve combat effectiveness needs to control stress through prevention, recognition, and treatment. Studies by Dr. Robert Alkov of the U.S. Naval Safety Center have indicated high levels of stress are tied to "pilot error" aircraft mishaps (3:19). Additionally, flying units will not be able to generate the expected combat sorties if stress casualties exceed the levels computed in the unit's pilot to aircraft ratio. As with any hazard, awareness of military pilot stress is required before pilots and supervisors can take an active role in its prevention. Therefore, pilots and supervisors armed with the understanding of how stress works and the tools to control stress can improve their unit's safety margin and combat effectiveness. Three stages in controlling stress are prevention, recognition, and treatment. One of the keys to prevent stress is unit bonding and morale (5:5).

Strong unit bonding and high morale can reduce stress both in peacetime and in combat. In combat, it must be a part of the unit makeup before the conflict starts in order to have its best effect. Unit bonding is effective in groups no larger than approximately 35 members (5:5). Strong leadership from the top and from within are essential in creating an atmosphere that fosters strong unit bonding. The author's personal experiences have led him to believe that there is room for more emphasis on flying unit morale. One example is when his flying unit wanted to paint its squadrons emblem on its aircraft during a squadron exchange. This was to be done with squadron funds and with a temporary paint. The request was flatly denied at a higher command level without an explanation reaching to the line pilots. The speculation on the pilots' part was that the wing leadership would not permit anything that might distract from wing standardization or show favoritism (6:--). Flying supervisors need to have a good understanding of group dynamics (5:5). When prevention fails, treatment (including stress-coping) is the next step.

Flying officers who understand that the causes of stress can not be completely eliminated will be able to develop positive stress-coping techniques. Dr. George Vaillant uses the following analogy to explain positive stress-coping: "[It is a process similar to when] an oyster confronted with a grain of sand, creates a pearl" (3:20). The stressed pilot will cover the pain of the "grain of sand" by either positive actions such as seeking professional advice or negative ones like turning to alcohol (3:20). If the pilot understands what is happening, he will be able to recognize the stress and take appropriate action. The educated and caring supervisor will notice the warning signs and provide or direct the correct coping solutions. Positive stress-coping can improve flight safety and combat effectiveness in the same way prevention does. However, learning to cope with combat stress presents special problems.

Combat stress will be something new to most USAF pilots in the next conflict. The supervisor's ability to share that experience is leaving the Air Force along with retiring combat veterans. Today's pilots (below the rank of midlevel major) and an ever increasing number of flying supervisors have never tasted the sting of combat and the stresses that accompany it. It will not matter how well pilots are trained to fly and fight if they become stress casualties in the first days of a conflict. "However, the good news is that [combat stress disorder] is eminently treatable, if recognized early and treated correctly (5:1)."

Recognizing combat stress can be accomplished by remembering the acronyms SAD and FITTful. S-A-D is when the pilot has Sleep disturbances with Anxiety and Depression. F-I-T-T-ful, on the other hand, stands for Fearful, Irritable, Tense, and Tremulous. These symptoms, when added to duty impairment, indicate that the pilot needs to be treated for combat stress (2:41).

Modern treatment of combat stress has proven to be effective. The three Rs (recognition, reassurance, and relaxation) are important first aid steps for the flying supervisor to keep in mind (2:41). The next level of treatment, which includes principles that proved themselves effective in the Lebanon War, includes proximity, immediacy, and expectancy (4:613-617). The supervisor and pilot should keep in contact during this period (5:3). Treatment should take approximately three days and be conducted away from the hospital in a duty atmosphere (4:616; 5:3). The goal is to return the pilot to combat just as if his only problem was a bad head cold (4:616; 5:3). For a complete understanding of stress, it is important to understand what happens when the combat pilot returns home.

Posttraumatic stress disorder (PSD) is not something the pilot or supervisor will normally have to treat but its prevention is within their capability. Again, the first step is still study and understanding. The preventive measures can be derived from the major factors that cause PSD (1:363). First, the supervisor must provide as safe an environment as possible. Second, the pilots need to know what types of battle to expect and be prepared for them. Third, the objectives of the conflict must be clear. Finally, support groups after the conflict are needed to provide an outlet for the emotions as they resurface. One close friend is better than nobody at all.

The number of techniques to improve the military pilot's ability to deal with stress may only be limited to the imagination of the leadership. The focus of any recommendation must be on education and the understanding of the best ways to prevent, recognize, and treat stress. The first step is awareness through education.

The USAF needs to increase stress awareness through training at all levels. If the pilots and supervisors are unaware of the causes, prevention, recognition and treatment of different types of stress, there can be little hope for improvement. The Undergraduate Pilot Training Syllabus of Instruction includes three hours of class on human factors which include pilot stress and its effects. This instruction should be expanded to include prevention, recognition and treatment of all types of stress. Commanders courses conducted by the major commands should include refresher courses on prevention, recognition, and treatment. The infamous slapping incident involving General Patton during World War II may not be a thing of the past unless everyone understands how stress effects individuals and how it should be treated. Although the author knew from experience the possible impact of stress, his training has been lacking when it comes to prevention, recognition, and treatment. However, to insure what is taught is correct, more scientific study is needed in relation to the pilot population.

The Air Force must conduct a study of the current method of controlling combat stress and its applicability for military pilots. While ground combatant stress has been the focus of many studies, the pilot population has not been studied in the same depth. The Air Force must look at techniques developed to see if there is any difference in how prevention and treatment should be handled. What percentage of combat stress casualties should be planned for in the pilot force? How should the Air Force address the return to flying status after combat fatigue treatment? Is the military pilot any more infallible to stress than other populations?

Air Force leaders need to consider the effects of policy changes on flying unit morale. In the interest of equal treatment for all, small unit identity and unit bonding may sometimes be degraded because it distracts from overall uniformity. Ideas that support unit bonding and morale should be considered very beneficial and encouraged in all non-flying and flying units. If those opposed to such activities truly understood the importance of developing and maintaining unit morale, they would not complain or disagree.

Pilot and supervisor awareness and concern for the individual and the unit are key in preventing and treating stress. Strong unit bonding and high morale can reduce stress both in peacetime and in combat. When prevention fails, stress-coping techniques can reduce the effects of stress. Combat stress will be something new for most pilots. However, it is treatable if recognized early and treated correctly. Increased emphasis on reducing pilot stress will be directly translated into improved safety margins and combat effectiveness.

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B. RELATED SOURCES

NOTE: See Reference page of Appendix

APPENDIX

STRESS AND THE MILITARY PILOT

A RESEARCH PAPER

Presented to

the faculty of the Graduate Division

Troy State University

In Partial Fulfillment

of the Requirements for the Degree

Master of Science in Counseling

and Human Development

By

Sidney K. Barwick

June, 1988

Introduction

The author selected his research subject due to concerns derived from his current profession. As a pilot in the United States Air Force, he has been concerned with the types of stress a pilot faces but, more importantly, he hopes to be a supervisor of other pilots in the near future. The author's experiences have also led him to take a special interest in this subject. Early in his career, he was faced with a separation and eventual divorce. When the author approached his supervisor for permission to postpone flight duties for safety reasons, his supervisor said: "If the Air Force wanted you to have a wife, they would have issued you one. Request denied." The author had to go over that supervisor's head to the next in command. Fortunately, he did find someone who understood the dangers of flying under excess stress. The author wants to improve effectiveness of his unit by improving the understanding of how stresses act on his men.

It is very important for the supervisor of military pilots to understand the factors surrounding this unique occupation. A better understanding will result in increased effectiveness and safety in his organization. The author will be looking at stress under two conditions that affect military pilots: (a) peacetime

stress, (b) combat stress. In each area, the author will study the causes of stress, the ways supervisors can help his pilots combat the effects of these stresses, and the treatment of combat stress. It has been many years since the United States Air Force has been in prolonged combat. Today, many unit supervisors are unable to draw on personal combat experience and must gain the necessary understanding of stress through other means. Armed with increased understanding, the supervisor (author) will be able to improve safety and combat success. The author will also address the lessons supervisors should learn from the posttraumatic stress disorders resulting from the Vietnam War.

Stress and The Military Pilot

Peacetime Stress

The military pilot is not a machine but a human being that has all the same problems as any other person. This is important to remember because this profession has drawn to it many people who are described as "Type A" personalities. Up to 90 percent of all military pilots are thought to suffer from some form of Type A behavior. Type A behavior has been linked to personal insecurity and lack of self-esteem. These professionals are extremely ambitious people who live competitively. The price of ambition and competition is that stress hormones are consistently released

(Roland, 1985). Stresses that are typical of a Type A person combined with a stressful occupation (flying and fighting) can become overwhelming. Stressors are cumulative and if not dealt with effectively, can cause significant distress (Picano, 1986). To compound the problem, a pilot's work place is one that requires total mental and physical commitment (Terry, & Terry, 1984). Distractions such as family concerns, financial worries, or work related problems can occupy his mind to the extent that he may not be able to handle aircraft malfunctions or even routine peacetime missions. Poor stress coping in aviation can have disastrous consequences. A psychologist, who studied the effects of stress, found that it is linked directly to aircraft mishaps (Picano, 1986). "Stress is an elusive concept, a force much like gravity in that we infer its presence by observing its effects" (Picano, 1986, p. 19).

The supervisor must be attuned to the stressful signals that he can observe in his pilots. Stress has been defined as "the nonspecific response of the body to external demands placed upon it (stressors)" (Picano, 1986, p. 20). The physiological response to stress occurs in three stages: (a) the alarm stage, (b) the resistance stage, (c) the exhausted stage (Picano, 1986). The supervisor can not see into the cockpit of his pilots to check for the alarm stage. Even if he could, it would be hard to detect physiologically because the effects are temporary and

internal. The main response during this stage is adrenal. The pilot must learn to use this response to his advantage. The resistance stage results in some longer lasting physical changes. The supervisor can work with the flight surgeon to identify this stage if necessary. The exhausted stage is one that would normally be hard to miss but the motivated pilot will sometimes try to hide the problems. They include gastrointestinal ulcers, hypertension, and arthritis. Since it is hard for the supervisor to detect stress before it has become life threatening, the good supervisor turns to education (Picano, 1986).

The pilot must be educated to look for signs of stress and understand its causes. Some people have a built-in signal that warns them when stress is present. One example is humming when stress starts to build. Any signal the pilot can be aware of and watch for will help him realize that adrenaline is starting to flow. With this awareness he will be ready to control his response (Rost, 1984).

Adrenaline speeds up reaction time and makes time pass slowly. The pilots with the "right stuff" have learned to control this response. It is very important for the pilot to recognize these changes and attempt to be very deliberate in his movements. When he reaches for a switch, he must force himself to slow down and make sure he gets the right switch the first time. Even though he may think he is moving slowly, he will

actually be moving faster than normal (Rost,1984). The author has over two thousand hours of flight instructor time. He has always taught his students, that when an emergency happens, the best thing to do (if he feels he must do something quickly) is to reach up and wind the clock. This keeps the adrenaline-filled pilot from acting before he thinks. Doing something incorrectly or out of sequence could lead to disaster. This kind of stress, if controlled, can lead to better performance and will not be long lasting. Stress is a fact of life and will be with each of us until we die. Every pilot needs to learn to control its possibly fatal effect. The supervisor can also improve safety by helping the pilot cope with other kinds of stress.

The supervisor needs to help his pilots understand the sources of stress before they can reduce its effects. Many supervisors think it is necessary to increase stress to improve performance. Performance does improve under stress and therefore it can have positive results (Peterson, & Nisenholz, 1987). However, the life of the military pilot has much more stress in it than many other professionals due to the nature of his personality (as discussed earlier), the need to train realistically (to put himself into simulated life threatening positions), and the demands required to prove his competence (not to mention the competition required to be the best). Therefore, in terms of stress, the military pilot is living on the edge.

The pilot's supervisor must work to reduce stress, prevent burnout, and improve safety.

Factors that can cause stress for the newly assigned pilot are the environmental factors. Environmental factors include:

- (1) Living arrangements - Is the young officer happy with his new quarters?,
- (2) Military life - Is this the first taste of military life and does he need help adjusting?,
- (3) Financial - Is he out on his own for the first time?,
- (4) Marital and peer group relations - Can he be helped in finding new friends and in adjusting existing relationships in his new life style?,
- (5) Flight program atmosphere and schedules - Has he adjusted to his very early or late reporting hours and his new training program (Psychological, 1985)?

It is the supervisor's responsibility to insure the new pilot is adjusting to these environmental factors.

The supervisor can reduce the level of stress in his unit by controlling organizational factors. Organizational factors include morale and group identity. Morale is the willingness of the group to work together, or the spirit of the group. Group identity helps the individual understand his role in the group and helps him feel a part of the team (Psychological, 1985).

Stress defense mechanisms come in four major forms. An

understanding of these forms will help the supervisor identify pilots having problems coping with stress and become more effective in counseling them. The first is denial. This defense mechanism is at work when the pilot does not want to admit that there is anything wrong. The second takes the form of projection where the pilot transfers the blame for his problems to someone or something else. Projection could undermine morale or manifest itself in family problems. The third is rationalization. Rationalization is when the young pilot makes excuses for everything that goes wrong. The last of the defense mechanisms is reaction formation where the pilot develops the attitude of "I don't care" (Psychological, 1985). These defense mechanisms do temporarily relieve some of the stress. However, they do not solve the the basic problem that has caused the stress. Unless the supervisor helps the pilot identify the root cause, stress can continue to build and, in the case of the pilot, result in the lose of life!

The April 1985 issue of "Combat Crew" contains a list of recent life events with mean values assigned to each of 43 examples that bring extra stress into one's life. It is a good tool for the supervisor to help his pilots understand the amount of stress they are dealing with in their everyday lives. The total points accumulated are used to forecast the odds of hospitalization within the next year for stress-related disorders (Psychological, 1985). (see appendix)

Combat Stress

Combat stress has been described for more than a hundred years. During the American Civil War, this stress was referred to as "Nostalgia" where the men longed for home. In World War I, "Shell Shock" was a descriptive term given to the condition for men located in areas of bombardment and "War Neurosis" was used for those who were not in bombardment areas. Later the terms "Combat Fatigue" and "Combat Stress Reaction" were the diagnostic tags used for those overwhelmed by the mental assault of war (Haase Ewin, 1986).

Colonel D. R. Jones, Chief Neuropsychiatry Branch, Brooks AFB TX described the war situation as follows:

The highly stressful combat environment inevitably produces psychological changes. Fear of death is present. One's friends may be wounded or killed, frequently right before one's eyes. There is nowhere to hide, especially with today's weapons. Sleep is of poor quality. Eating is irregular in quantity, quality and timing. Physical exertion is required, and may be interspersed with unpredictable periods of anxiety-filled waiting. In some situations one is helpless, and can only wait passively until the artillery or bombs cease. There seems to be no end to it, and no way out of it (Jones, 1982, p. 1).

In Central Europe, where the units are located closer to the anticipated battlefield, there are two added stresses. One, if there is a surprise beginning to the battle and there is no time to evacuate civilians, the men will be terribly distracted and stressed by concern for dependents (family) and other

noncombatants trapped in the battle area (Marquez, 1986). Secondly, the stress of a nuclear environment poses special problems.

The challenge of fighting a war on a nuclear battlefield has never been experienced. Therefore, the problems of stress in this environment have only been theorized. In addition to the usual causes of combat stress, the men will be faced with the fear of radiation both in the base area and the clouds they fly through. Radiation is invisible and can only be detected by dosimeters or other equipment which may not be trusted. This uncertainty brings on the additional fear of the unknown which can produce greater stress than threats that are known. Commanders should anticipate increased battle stress which may generate psychosomatic effects. The pilots may falsely believe they have been exposed to radiation and develop the symptoms of radiation sickness. It is estimated that two-thirds of those treated for gas exposure in World War I were never exposed (House, 1985). The first witnessing of a nuclear blast could temporarily incapacitate entire units. This has been referred to as the "disaster syndrome" where any short but violent event, such as volcanic eruptions and earthquakes, stun everyone for a time (House, 1985). Fears, that the tactical use of nuclear weapons will escalate to a strategic exchange involving the possible destruction of home and loved ones half way around the world, also produce great

anxiety on the nuclear battlefield (House, 1985).

Understanding the Soviet doctrine makes understanding combat stress even more important. The Soviets think of combat stress as a factor in achieving victory.

The function of a Soviet artillery barrage on a defensive position is thought to be twofold; firstly to inflict casualties, but secondly, and perhaps more importantly, to render the enemy survivors - up to 75% - immobile with shock long enough for Soviet infantry to overrun the position (Hannon, 1985, p. 623).

The preventive role of the supervisor takes much the same form as those preventive measures required during peace time. Pilots have many of the same stresses during combat as they do during peace time, only on a much larger scale. The most important factors in preventing combat stress are competence, good leadership, and unity. "Put simply, a man stands up to mental stress best when he feels part of a group which is well trained and equipped to complete an assigned task successfully, with the certain knowledge that his superiors are making sure proper (support) is available" (Haase Ewin, 1986, p. 140) Unit bonding and esprit de corps must be fostered and developed during peacetime and then, when in combat, the unit has a background upon which to stand. The supervisors that are forced into the manager role during peace time must switch from that role to a more charismatic role figure. During combat, economy of force is

still important, but you avoid stress with inspiration and perspiration (having faith and keeping busy). A good supervisor will also realize that there will be combat stress casualties. Of the first 1500 casualties in one area of the Israeli Defense Force in the Yom Kipper War, 900 were psychiatric. This was from the shock of the first engagement of unexpected combat. As the fighting drags on, the stress casualties will be from fatigue (Jones, 1982).

The military officer tends to think of sleep as a monk thinks of sex. "If you are really competent, you can get along without it" (Jones, 1982, p. 7). No place is this more dangerous than in aerial combat. The first skills to deteriorate under prolonged sleeplessness are cognitive skills with motor skills deteriorating soon after. Research shows that four hours of uninterrupted sleep is sufficient to maintain competency. When one reaches a normal four hour sleep cycle the first three stages of sleep drop out and the individual still gets the normal amount of the important fourth stage and REM sleep (Jones, 1982).

As the stress load increases, in the same way the electrical load may increase in a house, a pilots emotional "circuit breaker" may trip. The circuit breaker, in both cases, works to protect the system from burnout. Another good parallel between the house and the human is that in most cases, if the system is working properly, the breaker can be reset (Lande, 1986). The

supervisor is in a position to observe the pilots and to note the onset of combat stress casualties. The mental health practitioners should be involved as soon as possible and even be invited to visit while combat sorties are being planned. This practitioner should be the squadron flight surgeon, someone the pilots know and trust.

S-A-D and F-I-T-T-ful are two acronyms that can help the supervisor watch for the pilot about to "trip". S-A-D is when the pilot has Sleep disturbances with Anxiety and Depression. F-I-T-T-ful, on the other hand, is Fearful, Irritable, Tense, and Tremulous. These symptoms, when added to duty impairment, point to the pilot that needs to be treated for combat stress. This treatment can be handled on a first aid basis by remembering the three Rs: (a) recognition, (b) reassurance, (c) relaxation (Lande, 1986). By recognizing the causes of stress (e.g. someone died on a mission that should have been flown by the stressed pilot) the pilot can face his stress and reduce it with the help of others. Reassurance that he is not the only one that is scared when he heads out for the plane is important. The supervisor must make sure the pilot has time to relax, talk to others about the missions, and take some time to clear his mind.

When the three Rs will not be enough to get that pilot safely back in to the air, the supervisor needs to send the pilot for medical treatment. He should also let the pilot know what to

expect as he is sent for a rest (medical treatment). Current Air Force training uses the acronym "BICEPS" for the elements important to the recovering combat stress victim. The elements are as follows:

- (1) Brevity: Treatment should be no more than three days in the local area. If treatment must last longer, the pilot will be removed to the rear where improved medical treatment can be given.
- (2) Immediacy: Start care as soon as possible. Don't wait for a complete clinical picture.
- (3) Centrality: Treat all combat stress victims in one place, not in the hospital. It is important for their self-image and military identification.
- (4) Expectancy: The victim should feel he has just been assigned to temporary duty in another area. His chain of command should not be broken. He should be able to see friends to discuss problems. The pilot needs to know that this is a treatment for a normal stress reaction from combat exhaustion. The condition should not be referred to as an "illness" but a condition where he has been temporarily overwhelmed by circumstances and stresses that would effect anyone. He should wear his normal duty uniform and perform most normal duties including mission planning to keep in touch with his wartime mission.
- (5) Proximity: The treatment should be as close to the assigned

unit as possible to allow friends to visit but far enough away to offer relief from the stress that started the burnout.

(6) Simplicity: The goal is to return the pilot to his duties, not to do any deep psychodynamic work. Reinforcement of the tools that the individual has used before to reduce stress will help the pilot restore his ability to deal with the stress of combat. Medications should not be used with the possible exception of a short term sedative for the first night or two (Jones, 1982).

The following are key factors in the treatment: (a) rest, (b) appetizing, nourishing food, (c) group support, (d) professional support following the model of crisis intervention, (e) expectation of short term, (f) wear of the uniform to provide a non-hospital environment. If early care is provided within the principals of BICEPS an 85% return to duty is expected. Of those returning, approximately 7% will experience a recurrence of the reaction (Jones, 1982).

The Israelis, in the Lebanon War, used three of these six principles. The principles used were proximity, immediacy, and expectancy. The results were convincing. When all three principles were used, the rate of return to the active unit was 60% compared to only 22% when these principles were not used. Additionally, it is interesting to note that posttraumatic stress disorder was also reduced by 30% (40% vs 71%) when this treatment

was used (Solomon, & Benbenishty, 1986).

Posttraumatic Stress Disorder

Posttraumatic stress disorder (PTSD) is a very complicated subject. For the purpose of this paper the author will only touch on the lessons learned from Vietnam. We may not be able to correct all the problems that created such profound difficulties after Vietnam, but if they are kept in mind some of these factors may be reduced in the future. There are five factors that contributed to the large number of severe Vietnam veteran PTSD cases. First, the danger in Vietnam was real. The chance of being paralyzed was eight times greater than it was in World War II, and the risk of being killed was seven times greater. Second, the stress from the guerrilla type war was very high. Attacks could come at any time and the enemy was everywhere, from a crying child to an old woman in the street. Third, the types of weapons used were designed to add fear to pain (booby traps made to destroy the area below the belt). Fourth, there were many who questioned why they were fighting the war in the first place. These questions added great inner stress. Finally, many Vets left the bloody battle fields and were home with their families in just 36 hours. There was no time to adjust, and nobody to share their experiences (Hayman, Sommers-Flanagan, & Parsons, 1987). Remember, the mood of the country at that time

made many of these men feel more like murderers than servants of their flag.

Conclusions

The military pilot is subject to stress just as any other human. His personal makeup and the demands of his profession make him the target of increased stress. The nature of his profession makes stress a very deadly animal. The supervisor must take a personal interest in educating his pilots on the types of stress they will encounter. Additionally, he must understand the best types of treatment to help reduce the time lost due to combat stress. Reduced stress and better stress awareness will help his unit improve its safety record and make it more effective in combat. If we can learn from our Vietnam Veterans, then we may be able to make life better for those who bravely serve.

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Appendix

Schedule of Recent Experiences*

RANK	Life Event	Mean Value
1	Death of a spouse	100
2	Divorce	73
3	Marital seperation.....	65
4	Jail term.....	63
5	Death of close family member.....	63
6	Personal injury or illness.....	53
7	Marriage.....	50
8	Fired at work.....	47
9	Marital reconciliation.....	45
10	Retirement.....	45
11	Change in health of family member.....	44
12	Pregnancy.....	40
13	Sex difficulties.....	39
14	Gain of new family member.....	39
15	Business readjustment.....	39
16	Change in financial state.....	38
17	Death of a close friend.....	37
18	Change to a different line of work.....	36
19	Change in the number of arguments.....	35
20	Morgage over \$30,000.....	31
21	Foreclosure of mortgage or loan.....	30
22	Change in responsibilites at work.....	29
23	Son of daughter leaving home.....	29
24	Trouble with in-laws.....	29
25	Outstanding personal achievement.....	28
26	Wife begins or stop work.....	26
27	Begin or end school.....	26
28	Change in living conditions.....	25
29	Revision of personal habits.....	24
30	Trouble with boss.....	23
31	Change in work hours of conditions.....	20
32	Change in residence.....	20
33	change in schools.....	20
34	Change in recreation.....	19

Continued

35	Change in church activities.....	19
36	Change in social activities.....	18
37	Loan less than 10,000.....	17
38	Change in sleeping habits.....	16
39	Change in number of family get togethers.....	15
40	Change in eating habits.....	15
41	Vacation.....	13
42	Christmas.....	12
43	Minor violations of the law.....	11

Directions: Add the score of all items applying to you in the past year. The number derived is a predictor of the % chance of hospitalization within the next year according to the following: below 150 - 10%, between 150 & 200 - 50%, over 300 - 90%.

* Copied from Combat Crew, (1985, April, p. 26)

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