

Society of U. S. Naval Flight Surgeons



Naval Aerospace Medical Institute, Code 10
Naval Air Station, Pensacola, FL 32508

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NEWSLETTER

OCTOBER 1985

PRESIDENT'S COMMENTS

Ever hear that tired old bromide that the Aerospace Medical Association is an Air Force organization? I sure have. Frequently. And I'll lay on you even money that the people who habitually mouth this stuff are the same ones who decry the bad press to which the medical profession is frequently subject, yet they do not support (by joining) the American Medical Association; or who get upset over restrictive gun control laws, yet fail to join the National Rifle Association. Bull!! I say "put up or shut up." Those who don't shut up, while still failing to put up, are called "cop outs."

I'll grant you that AsMA has more USAF than USN members. The reason for this is simply too obvious to belabor. What irks me is that we Navy people find ourselves under-represented within AsMA. And I am particularly irked because I think it's our own fault. We need to become more involved; to grab a bigger piece of the action; to "put up."

The first step is to join. All members of SUSNFS must be members of AsMA, since we are now a constituent organization (this status gives us a representative on AsMA's Executive Council. Hence, more clout). So all of you readers out there who are members of neither ought to get on board. I know that neither organization is perfect, but what have you done to improve things?

Secondly, get busy. Give a bit of your time to one or more committees. This will do two things:

1. Improve AsMA by the infusion of your unique talents and perspectives; and

2. permit you to become known by those who can later elect you to Association Fellowship and, eventually, Fellowship!

Thirdly, be aware that AsMA membership for 3 years is required for your application for Associate Fellow. That plus the \$25.00 fee. For most of us, this occurs sometime during our second tour as a Flight Surgeon. Or Physiologist. Or Psychologist.

Involvement in Committees and the Associate Fellows Group demonstrates objectively one's interest in the Association, and accumulates the points upon which election to full Fellowship is based. Be advised that election to Fellowship from among those **not** holding Associate Fellowship status does occur, but it is relatively uncommon, and generally limited to those having made unusually meritorious contributions to the Association.

Finally, your involvement in the Scientific Program is important, whether it involves presenting a paper, poster session, workshop, chairing a session, or whatever. Such involvement provides added exposure, accumulates further points, and serves as the obvious track record of the involved, concerned professional.

I, or any of the other "old people" in the Association who

know you, will be happy to sponsor your application. Just say the word. Above all, **do** it!

-HANDBOOK SITREP-

CDR Jim Graves tells me that his Handbook Committee (CDR George Atwell and LCDR Barry Haney) are hard at it and making progress. My thanks to them on an exciting project, and also a potential source of needed income for the Society. I urge all whom Jim has asked for input to please respond in a timely manner (including me; it's coming Jim. ...). It's a big job; let's pitch in and give them a hand.

-FINIS-

Income needed for what, you ask? Well, think about it. Given a more sound financial status, what could SUSNFS do? How about an Annual Seminar, approved for Category I credit? A distinctive embroidered SUSNFS patch for your favorite blazer jacket? How about it? Any ideas? Send them in: Captain C. H. Bercier, Jr., MC, USN, Force Surgeon, Fleet Marine Force, Atlantic, Norfolk, VA 23515-5000.

C. H. Bercier, Jr.
CAPT, MC, USN

NAMINOTES

FROM CODE 14

NEW GUIDELINES FOR BLOOD VALUES

The Aeromedical Advisory Council has unanimously recommended to the Commanding Officer, Naval Aerospace Medical Institute, that the following values be considered acceptable for all aviation personnel and aviation candidates (and he approved). For all practical purposes, that means that these will be the accepted standards for aviation, at least for the immediate future. This should help clear up uncertainty as to what is normal and what is not. You may start using these standards now.

	MEN	
	Acceptable	Heme Consult Needed
Hct	40-52	38-39.9 and 52.1-54
Hgb	14-18	12-13.9 and 18.1-20
	WOMEN	
	Acceptable	Heme Consult Needed
Hct	37-47	35-36.9 and 47.1-49
Hgb	12-16	10-11.1

All Aviation physicals require a Hematocrit. If the hematocrit is out of the accepted range, repeat x 2 and take the

(continued)

average of the 3. If this value is still out of the accepted range, a hematology consult is required. A CBC with differential is part of the hematology consult.

The accepted limits of normal for this CBC are below.

Erythrocyte Count **Men:** 4-7 **Women:** 3.8-5.5

	Both Sexes
MCV.....	80-100
MCH.....	27- 35
MCHC.....	31- 38
Segs.....	40- 80
Bands.....	0- 10
Lymphs.....	20- 50
EOS.....	0- 10
Baso.....	0- 3
MONOS.....	0- 10

Values which on average of three trials lie outside of these limits must be very carefully explained by specialty consultation before consideration.

These are considered to be quite generous limits as appropriate with an imprecise test. The level of false positives should approach zero.

A.F. Wells
CAPT, MC, USN
Head, Aerospace Physical
Qualifications Dept.

REMARKS FROM OPHTHALMOLOGY

We've completed quality assurance visits of the Navy Aviation Examining Rooms in CONUS and have found many deficiencies, as was expected. You can check with your clinic leadership with regard to your own deficiencies and their correction. We'll discuss the most common deficiencies in detail in another newsletter. In general, when clinics fared poorly, the leadership put a low priority on a quality physical examination. The most common problems were ignorance of specific visual testing methods and a lack of randomness of testing.

Too often the Flight Surgeons in the Aviation Examining Room are "going through the motions" of performing a physical exam and not considering the critical nature of the "routine physical." He forgets that when he signs that Form 88, he's assuring the Navy and the American citizen that his corpsmen have done the tests properly; that we can all sleep better tonight because the man with the responsibility to protect us is fit to fly and fit to **perform**.

When you're evaluating an aircrewman on a day-to-day basis or on an annual physical exam, the question you should be answering is, "In an instance of national emergency, will that aircrewman be able to perform up to standards with little or no medical support any place on earth?" For example, when that aircrew is engaging a section of aircraft preparing to attack the fleet in the Gulf of Sidra, will their visual systems perform up to standards? Will they be able to recognize the opposing aircraft type at three miles? Too often, flight surgeons consider only whether the man is safe to fly. This is much less significant than whether the man is fit to perform in battle.

To take a medical example of this situation that strikes all too close to home, much has been reported in the media about a Navy surgeon who has been documented only too well to have performed very poorly and who has been discovered to have vision in one eye and therefore, no stereopsis. No one in the media seems to realize that virtually no neophyte or experienced surgeon in the world is systematically examined for physical or mental defects which may affect his surgical performance.

The practical surgeon without stereopsis might perform passably during a routine, elective procedure, but when things

are going wrong and blood begins to obscure the operative field, his visual deficiencies may lead to disaster. Emergencies in surgery not only occur when the patient has an "emergency," they occur only too often during "routine" procedures.

Some of the "routine" tasks of the flight surgeon assume critical importance when the fleet sets sail in harm's way.

Philip T. Briska
CAPT, MC, USN
Head, Ophthalmology Department

INTERNAL MEDICINE NOTES

PROTEINURIA

On every flight physical exam urine is screened for protein content using a dipstick test. When this screening test is "positive," we need to know what it means and what to do to insure proper diagnosis and appropriate aeromedical disposition. Steps in diagnosis are simple, but require attention to detail and an understanding of the implications.

The test used most often for screening is a tetrabromophenol blue colorimetric dipstick which detects albumin concentration of 5-20 mg/dl as "trace." Also used is the sulfosalicylic precipitation test compared against standards. This test precipitates all types of protein.

Protein is found in small amounts in normal urine on the average of 40-80 mg/24^o or 2-8 mg/dl. Proteinuria or abnormal protein excretion is greater than 150 mg/24^o. Since protein is measured by its concentration, it is possible to get a trace to 1+ result with concentrated urines (>1.024 specific gravity) or to miss significant proteinuria if urine is too dilute (< 1.008). Outside of these ranges the patient should be instructed to increase or decrease fluid intake and the test should be repeated.

The normal levels of protein excretion are not based on vigorously active young men, and several factors may lead to mildly increased protein excretions in normal patients. The chief factors are strenuous exercise, fever, viral illness, or vasoconstrictive states such as dehydration. In these situations, 24^o urine protein of up to 300 mg is not unusual. If after several days rest or recovery the urine shows no protein and the patient remains healthy, no further workup is indicated. In other individuals there is increased protein excretion on standing, a condition which has not been associated with significant renal disease. Placing the patient supine immediately after emptying the bladder, then collecting a 4-6 hr. urine sample while supine and comparing it to an ambulatory collection proves this etiology. However, if excretion remains above 150-200 mg/day a more detailed renal evaluation is indicated, even if the proteinuria is orthostatic in nature.

If protein excretion indicated on the dipstick remains positive, the initial step in diagnosis is careful inspection of urinary sediment for RBCs, WBCs, casts or crystals. These findings give useful clues to infection, glomerulonephritis, urolithiasis, or interstitial nephritis, as sources of proteinuria. Concomitantly, a 24 hr. urine for protein and creatinine clearance should be initiated to quantify precisely the protein excretion. When clinical or laboratory results point to the need for further studies, these may include urine culture, IVP, filtering urine for stones, renal ultrasound or nuclear scans. The most common reasons for significant proteinuria with normal sediment are diabetes, hypertension and lupus erythematosus. Thus, screening should include FBS + 2 hr. PP, BP screening and ANA. When results suggest parenchymal, infectious or obstructive disease, treatment or referral should be initiated as soon as possible.

Proteinuria is not a disease **per se**; therefore, it is not a cause **per se** for grounding aviators unless there are signs or symptoms of more serious illness. If entities such as hyper-

tension, renal calculi, or diabetes mellitus are found, flying status will be dictated by the underlying problem. It should be stressed, though, that diagnostic steps should be followed logically and expeditiously until a satisfactory explanation of proteinuria is accomplished.

Richard Osborne
CDR,MC, USNR
Head, Internal Medicine Dept.

PSYCHIATRY

AERONAUTICAL ADAPTABILITY OF DESIGNATED NAVAL AVIATORS

If Wings of Gold are earned by successfully running the gauntlet of rigorous selection procedures and high performance demands of flight training itself, has the designated Naval Aviator not proven his ability to adapt to the demands of the aviation environment? In other words, one would expect to find the term not aeronautically adapted appropriately applied to individuals in the selection process or in the student phases of flight training. The prudent flight surgeon would be well advised to use caution in applying the term not aeronautically adapted to a designated Naval Aviator; however, such a conclusion is sometimes correct and justifiable.

Personality traits are prominent aspects of personality and do not imply pathology. Personality **disorder** implies inflexible and maladaptive patterns of sufficient severity to cause either significant impairment in adaptive functioning or subjective distress. Individuals with compulsive personality style may be both normal and adaptive. The military aviator does well to be ambitious, achievement-oriented, punctual, organized, attentive to detail, able to focus attention and screen out distractions, and motivated to live up to high standards of performance and morality. Therefore, compulsive personality traits are common in Naval Aviators and do not compromise flight performance or safety, if the individual can grasp "the big picture" (in addition to details) and use a variety of flexible approaches in dealing with stress. However, if the military aviator is industrious and efficient without sufficient flexibility and spontaneity, he may become preoccupied with details, experience difficulty grasping "the big picture," be harsh in his own judgment of his performance, suffer performance anxiety, and demonstrate impairment in his ability to cope with the complex demands of the operational military aviation environment, thus compromising flight performance and/or flight safety.

The following example illustrates that successful adaptation to the flight training program does not guarantee successful adaptation to the demands of all military aviation missions. Several months after successfully completing the jet attack RAG, a hard-working, well-liked designated Naval Aviator, with a record of above-average performance, felt uncomfortable and unsafe in military aviation. He informed his flight surgeon that he must resolve the difficulty or leave aviation. The following history unfolded.

Raised in geographical isolation, he especially enjoyed the freedom of living by his own rules in the wilderness. Socialization was restricted and he did not become involved in team sports in school. He excelled academically and attended college on a military scholarship. A methodical, list-oriented, by-the-numbers individual since childhood, he enjoyed performing on the college precision drill team. He chose the aviation career path out of curiosity, but he gave the flight program his maximum effort. He excelled in learning procedures, finding no difficulty in memorizing lists of facts. By avoiding television, socialization, and virtually any other activity that might interfere, he was always extremely well prepared for each task. His performance was above average and he obtained his goal of flying jets. He completed the advanced strike syllabus with little difficulty, achieving above-average carrier qualification.

In the RAG, he first noticed difficulties making decisions in unstructured flight situations, but he regarded these as isolated incidents. However, upon reporting to his first operational tour, he was expected to develop proficiency in the attack scenario, to develop increased responsibility in leading flights, and to be subjected to novel, unplanned situations requiring a spontaneous plan of action based on flexible decision-making in the air. Very confident in his stick and throttle skills and his ability to memorize procedures, he attempted to anticipate and plan his flights in detail, using two knee boards to keep track of numerous facts and procedures he was unable to commit to memory. His methodical approach served him well on the ground, but inflight situations requiring deviations from the pre-planned brief impaired his concentration and judgment, sometimes resulting in inaction or counterproductive action. He began to experience anxiety, gastrointestinal symptoms, and insomnia in anticipation of flying; and he experienced nausea and headaches during flights that deviated from the original brief. His symptoms were relieved by using his collateral duties to avoid flying.

Although his performance was not considered to be below that expected at his level of training, he felt that his dependency on the knee-board lists for decision making created a dangerous flight situation. He described himself as very methodical and deliberate, tending to break multiple tasks into single steps and to fixate upon completing each step in sequence by the numbers, occasionally frustrating others by being slow in order to be perfect. He did not experience difficulties with sufficient time to make decisions on the ground, but he was acutely aware that problem-solving is time critical in the air. On a difficult night airborne refueling hop, he became fixated on his knee-board lists, screening out awareness of the other aircraft joining up on him, and completely losing "the big picture" required of a flight section leader. He described few problems when not responsible for other aircraft, but he did not feel that he could become a safe section leader. He had never felt that flying was everything, as it appeared to be to his peers, so he had always regarded himself as on the periphery of the aviation community. One of his reasons for choosing single-seat jets was a preference for flying by himself with no one looking over his shoulder, and he decided to pursue VFR flying in a light civilian aircraft in the wilderness near his home after the expiration of his military obligation.

There was no evidence of mental illness or defect. Psychometric testing was consistent with situational distress in a perfectionistic individual. Although his perfectionistic personality traits may be adaptive in routine aviation duties, they were maladaptive in operational military aviation situations requiring rapid headwork and flexible coping strategies. He was considered to be permanently not aeronautically adapted for duty involving flying as a Naval Aviator by reason of an occupational problem (inability to adapt to the inflight demands of flight leadership) secondary to compulsive personality traits that interfered with flight performance and flight safety.

Aeronautical adaptability may be impaired in designated aviation personnel, first coming to light when flexibility is required in adapting to new mission requirements. A careful review of the past history, with emphasis on the pattern of personality adjustment and specific examples of behavior in situations requiring adaptive change, may justify a conclusion of "not aeronautically adapted." Although personality assessment is stressed in psychiatric training, the general hospital psychiatrist without firsthand military aviation experience, may not be keenly aware of the negative effects of certain personality traits on military flight safety and performance. If you seek guidance in questioning the aeronautical adaptability of a designated Naval Aviator, please feel free to consult the NAMI Psychiatry Department (Autovon -- 922-4238).

J. C. Mangrum
CDR, MC, USN
Psychiatry Division Officer

DETACHMENT ROSTER

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GRADUATING 11 APRIL 1985**

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LOST TO FOLLOW-UP

We have received returned mail for the following SUSNFS members. If you know their whereabouts or have a forwarding address, please advise us so that we can maintain contact within our community: **Homer Moore, LCDR, MC, USN, Secretary-Treasurer, NAMI Code 071, NAS Pensacola, FL 32508-5600, AVN 922-4349, CML (904) 452-4349.**

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- EDITORIAL POLICY -

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