

Society of U. S. Naval Flight Surgeons



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

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NEWSLETTER

JANUARY 1986

PRESIDENT'S COMMENTS

In the July 1985 issue of SUSNFS Newsletter, I wrote of my intent to communicate the Society's concern, relative to the new ETPF physical examination procedure, to the Surgeon General. His office has kindly granted permission to publish his reply. Herewith, then, are both letters:

Dear Admiral Seaton,

At its annual meeting in May of this year, the Society of U.S. Naval Flight Surgeons was briefed on a recent policy decision which effectively removes the Naval Aerospace Medical Institute (NAMI) from its historic role as the final filter in the medical qualification of the great majority of candidates for flight training.

The members' concern over this development focused on the applicants determined by field activities to be physically qualified who are, in fact, not physically qualified when re-examined at NAMI prior to entrance to flight training. The undocumented implications of such individuals entering the training pipeline led the Society to pass a resolution strongly urging that the matter be reconsidered.

In addition to the Society's primary concern for flight safety, a secondary concern over the fate of NAMI itself was expressed. A clinically strong and operationally experienced staff is seen as a recourse of exceptional merit for the entire aeronautical organization. The removal of a major portion of NAMI's clinical mission raises rightful concern over possible resource reallocation with a resultant loss of staff and direct threat to the Aerospace Medicine Residency Accreditation.

The Society sees merit in a centralized, NAMI-managed, quality control program with the satellite examining facilities accountable to the Institute for aviation type examinations, and is grateful for your support of similar initiatives in the past. However, if but one entrance examination is to be done, the Society urges that it be done by NAMI, where corporate experience and consistency of results have been historically demonstrated. Resumption of the NAVIP Program would accomplish this worthy objective.

Very respectfully,

C. H. Bercier, Jr.
CAPT, MC, USN
President, 1985-86

Dear Doctor Bercier:

Thank you for your letter of 2 October 1985 seeking clarification of the single physical examination policy for aviation

candidates. I want to assure you and the members of the Society of U.S. Naval Flight Surgeons that the Secretary of the Navy and I both seek to enhance, not diminish, the role of the Flight Surgeons and their vital contribution to Naval Aviation and aviation safety.

The diligent support and abilities of the examiners in the Certified Satellite Facility Physical Examination Program will be the sole accountable determiners of the physical qualifications of the candidate meeting the established standards. It is, therefore, incumbent upon Naval Aerospace Medical Institute (NAMI) to ensure the examiners, the facilities, and the applied procedures are unquestionably correct. Improved education, training, support consultative expertise, and quality assurance abilities should continue to be strongly emphasized in the residency training program so all Flight Surgeons are aware of their responsibilities wherever they perform their duties.

In this milieu of scarce resources and the goal of quality care for all of our providers, our policy reflects application of the principle, "Whatever we do, we must do right." I earnestly solicit the Society and its members' continued support of our Naval Aviation Program.

Sincerely,

Lewis H. Seaton
Vice Admiral, Medical Corps
United States Navy
Surgeon General

HANDBOOK/MANUAL SITREP

Handbook Chairman, CDR Jim Graves, tells me that he is receiving input (including mine, finally) for the Flight Surgeon's Handbook project, but this input has largely been limited to that from NAMI staff. CAPT Dick Millington has decided to request F.S. Manual Chapter revisions shortly, and this should facilitate concurrent Handbook input to Jim. Obviously, the Manual is a much larger effort. But as long as authors are working on one why not dash off the other while you're at it?

Has anyone given Jim Graves ideas/suggestions on this? What do *you* feel would be useful in a concise, pocket sized reference? Get your thoughts to him (c/o NAMI Training, Code 10) and help to make this project one of which we can all be proud.

GUEST OF HONOR -- NASHVILLE

It is with great pleasure that I announce the acceptance by LTGEN Keith A. Smith, Deputy Chief of Staff (AIR), HQMC, to be our Guest of Honor and keynote speaker at our Nashville Navy Luncheon. It was my privilege to serve Gen. Smith
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as his II MAW Surgeon for 2 years. He is a strong and effective supporter of our aeromedical endeavors and you can be assured of a typically loud and clear message next April. Y'all come.

FINAL THOUGHTS

It recently occurred to me that, collectively as a Society, we have very little information on the *person* of the man whose name honors our annual award. Richard E. Luehrs was a man whom I never met, and saw (and *heard*) only once, as a Student Flight Surgeon, in 1966.

In order to attempt to make his professional legacy to us more clear and meaningful, I have requested information from Society Members who knew him in his prime. To any of you Gray (or Bald) Eagles out there that I may have omitted from this mailing, I assure you it was not intentional. It is just that I know so little of the man, that I'm merely at the groping stage. Any thoughts as to how this project should be conceptualized and structured would be most welcome.

Keep those cards and letters coming, c/o Force Surgeon, HQ FMFLANT/Norfolk, VA 23515, (804) 444-6020; AV 564-6020/6112.

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

SECRETARY-TREASURER NOTES

Among other things, the by-laws of SUSNFS require concurrent membership in the Aerospace Medical Association to qualify for membership in the Society. For this reason, the SUSNFS roster is compared with the list of AsMA members each year. Having just completed this Herculean task, I have made a large number of adjustments to the SUSNFS mailing list. Specifically, those SUSNFS members whose names did not show up on the AsMA list as published in *Aviation, Space, and Environmental Medicine* 56(8), September 1985, have been downgraded to the status of subscribers. On the other hand, SUSNFS subscribers who appeared as AsMA members were upgraded to full Society membership if it appeared that they were otherwise qualified, i.e., designated Naval Flight Surgeons or AMO's.

What does it all mean? In a nutshell, subscribers are disenfranchised, but do receive the Newsletter. SUSNFS members can vote if they are in good standing with dues paid, and thereby may participate in the decisions and policies of our organization.

In the process of reconciling the membership lists, it is almost inevitable that a few mistakes have occurred. Therefore, I ask you to check the mailing label on *this Newsletter* for accuracy of your name, rank, address and status. Please call or write me and I will make any necessary corrections immediately. The cryptic letter "S" at the upper right indicates that you are a subscriber; "M" signifies member. The number indicates the year to which dues are current, based on a fiscal period beginning and ending with the annual concurrent meetings of AsMA and SUSNFS. "LI" means paid up for life, while "IN" signifies an institution receiving a gratis subscription.

Speaking of dues, the record shows that 53% of the subscribers and 34% of the members are in arrears. We have continued sending the Newsletter out to these folks, hoping to maintain lines of communication within our community. However, this gets darned expensive, and I just don't know how much longer the paying membership can be expected

to shoulder the cost of continued correspondence with persons who have not been heard from in years.

If on checking the label you discover that your membership elapsed some time in the past century, do not despair. I covertly operate a liberal clemency program, so that by letting me know that you still exist and sending a check for \$10.00 (made out to SUSNFS) as if you were just now joining, no one will ever be the wiser.

Otherwise, a purge is coming.

**Homer Moore
LCDR MC USN
Secretary-Treasurer, SUSNFS
%Commanding Officer (Code 071)
NAMI
NAS Pensacola, FL 32508-5600
(904) 452-4349
AVN 922-4349**

NAMINOTES

WANTED -- FLIGHT SURGEONS

We have a critical manning shortfall of Flight Surgeons on the horizon. By next summer we will be 20-25 Flight Surgeons short of our requirements. We need your help in solving this immediate shortage *and* for the longer term. We ask every reader of this NEWSLETTER to do the following:

1. Advise your Flight Surgeon colleagues that NMPC will look favorably on extensions in a Flight Surgeon billet or on a request for a second tour.
2. Advise previous Flight Surgeons now in other endeavors that NMPC would welcome a request to return to Aviation Medicine.
3. Advise any medical officers looking at involuntary separation this summer that there is a good possibility they could remain on active duty if they volunteered for Flight Surgeon Training.
4. Educate any interns you may be in contact with about the Flight Surgeon Program.

EYE PEARLS

We recently examined an Ensign who had a significant color vision deficiency and yet managed to get into the flight training program as a student naval aviator. It points up some of the pitfalls of color vision testing. He originally failed a color vision test in 1980 but somehow managed to be accepted into a navy college training program after identifying bright red and green lights properly. In 1981 he was given nine successive runs of the Farnsworth lantern (FALANT) in two days and did not manage to pass any of them. He averaged two errors per run. He was declared to be color defective and signed a statement that when commissioned in the Navy, he would not be eligible for any line officer program. Prior to graduation, he was given five additional tests and managed to have a passing score on the last two, missing one presentation on each. On his next color vision test he misnamed one of the presentations and was asked by the examiner, "Are you sure?" He changed his answer and thereby managed to pass the test. After he got into flight training, he decided that flying was causing him too much anxiety and thus turned himself in as a color vision defective. On the three runs we presented to him, he missed an average of two out of nine each on the FALANT. He was

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found to have a deuter-anomalous (green) defect on pseudo-isochromatic plate testing. He is now going to try to become a supply corps officer.

The FALANT test works very well when properly given and interpreted. The Manual of the Medical Department gives detailed instructions on how it should be given and the instructions that are riveted on the back of the machine are also very good. The test targets must be given in a random manner, in a normally lit room at a distance of eight feet. If a person gives a wrong answer, he should not be prompted and the incorrect response should be properly recorded. The most runs that any candidate should get are six and then only in a borderline case. The passing grade is nine out of nine presentations correct on the first run or 16 out of 18 correct on the next two runs. If his error averages 1.5 per run, then he is given a five minute break and the test is repeated. If he does not pass on the next three runs, he fails the examination. If a person misses about two presentations per run and you give him enough runs, sooner or later he will probably miss only one per run and thereby pass the test, but this is an incorrect way to do the test.

AORTIC REGURGITATION

Chronic aortic regurgitation (AR) is one of the valvular lesions which can often be diagnosed before there has been any irreparable myocardial damage. This is due to its long asymptomatic period when the left ventricle (LV) adapts to the leaking aortic valve. In the age group 15-35 years, the most common cause today of AR is the "bicuspid" aortic valve which probably occurs in 2% of the general population. Fusion of the commissures, perforation of valve cusps during endocarditis attacks and dilatation of the aortic root are the principle mechanisms by which bicuspid valves deteriorate and create regurgitation.

Because this condition has a long asymptomatic course, early diagnosis requires careful auscultation and careful attention to the pulse pressure and signs of possible cardiac enlargement. On routine cardiac examinations there are certain key features for which one must be alert. The heart's response to AR is an accommodation to volume overload; therefore, three principle clinical features are paramount. First, there is an increased pulse pressure with systolic pressures rising into the 140-170 range while decreased systemic vascular resistance and the backward flow of blood into the LV decreases the diastolic pressure often to the 50s and 60s. Second, the heart is hyperdynamic due to its increased size and requirements for an extra large stroke volume. The PMI is enlarged, more lateral and extremely vigorous. Third, is the classical diastolic "blowing" murmur at the lower left sternal border. This should be sought carefully by listening with the patient holding his breath in expiration and leaning forward. All the numerous peripheral signs of AR, Corrigan's water hammer pulse, deRosier's sign, Quincke's pulses are simply manifestations of the hyperdynamic cardiac status of the patient and the widened pulse pressure. It should be added, a young, nervous patient with a thin chest wall may have a vigorous PMI but his pulse pressure should be normal and no diastolic murmur should be present.

When an individual is found with a diastolic murmur, a careful cardiac workup should be undertaken. An aviator or aircrewman must be grounded until his true cardiac status is known. To determine the aviator's long-term status requires specific data. One must obtain a reliable estimate of his regurgitant fraction (the amount of the backward leak through

the valve). The width of the pulse pressure gives a reasonable estimate of severity. Second, if possible, it must be determined if the AR has been chronic or is clue to an acute event such as infectious endocarditis. If the patient has symptoms of infection — chills, sweats, weakness, visual field cuts, immediate hospitalization is required. The echocardiogram is the single best means of determining if vegetations are present. ECHO will also help evaluate the third important aspect of AR; the degree to which the LV has been able to adapt to the volume overload. In significant AR a normal ejection fraction (50-60%) is abnormal for it should be elevated or hyperdynamic. Involvement of other valves with either a rheumatic process or infectious endocarditis (IE) can also be best evaluated by ECHO. In some cases, a cardiac catheterization with aortic root angiography will be required to accurately assess the patient's hemodynamic status.

Aviators with mild AR are not necessarily grounded permanently. The complications of early or mild AR are few and rarely sudden. The one exception to this is IE; therefore, the flight surgeon must be certain that the patient understands the importance of IE prophylaxis. If the AR is fully evaluated and found to be mild, very often a waiver can be granted. Follow-up examinations should be frequent (every six months) and the patient should be familiar with the symptoms of endocarditis.

Although the progression of AR is slow, many patients with AR do come to valve replacement. Deciding when valve replacement should be performed is a difficult and important decision. If the flight surgeon has any doubts or concerns about changes in a patient's status, he should be referred immediately to a cardiac center.

CDR Osborne
Head Int. Med. -- NAMI

NEUROLOGY NOTES

MIGRAINE IN AVIATORS PART I. PROBLEMS OF POLICY

Migraine is one of the most common neurological disorders, yet remains one of the most poorly understood. Because of the spectre of recurrent incapacitating "sick headaches" possibly associated with neurological deficits, any history whatever of migraine has traditionally been viewed with prejudice in consideration of fitness for flying duty. I contend however that migraine is a more or less inescapable feature of human existence. Thus a rigidly negative aeromedical policy on migraine inevitably puts the Flight Surgeon on a collision course with the Facts of Life!

I will present the evidence that migraine ubiquitously affects mankind in a future article. In the present communication, I wish to reflect on aeromedical policy. It is my thesis that the inflexible policies of the past, however well intended, have actually worked at cross purposes to aviation safety. The main reason this holds true is because the patient who presents to the Flight Surgeon with migraine is NOT the one who has frequent symptoms. *Au contraire*, the true migraineur recognizes the recurring pattern of symptoms for what it is, and with a full appreciation of the aeromedical implications will *conceal* the problem from the Flight Surgeon. By contrast, the individual who experiences an isolated or infrequent migrainous episode will throw himself in terror

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at his Flight Surgeon's feet, convinced that the symptoms surely represent some dread disease of the brain. Then the Flight Surgeon delivers the bad news, "No, that was a migraine ...," and the good news, "...but at least you don't have to worry about a brain tumor while you're looking for another job!"

A policy which effectively grounds pilots whose infrequent symptoms represent a lower likelihood of adverse outcome compared to other individuals who slip by would seem to be a tragic irony. The real cost however does not stop with wreckage of individual careers, loss of human resources, or wastage of the taxpayers' assets. The true carnage is the Flight Surgeon's loss of rapport and effectiveness in the squadron. Word travels fast when a frightened patient comes to his doctor in confidence for help, and exits the office feeling betrayed. There is no second chance for the trust of the other squadron members; the Flight Surgeon will be avoided or handled in a strictly superficial manner. Consequently, real and significant aeromedical problems will go undetected.

But what about the impact of migraine on aviation safety? In fact, there *are* a number of cases on record where migraine is implicated as an aviation hazard. However, after an exhaustive survey of the literature, the number of such anecdotes in the entire history of aviation can be counted on one hand — with fingers left over.

One problem in assessing the safety implications of migraine is that we have no good data on the actual prevalence of the condition among Navy pilots. However, it seems reasonable to contrast migraine with some other potentially incapacitating neurological disorder affecting young people — epilepsy, for example — to arrive at a first approximation of relative risk for aviation. Now we know that in the population at large, the incidence of migraine even when narrowly defined is at least a hundred times greater than the incidence of epileptic seizures. Yet when the computer records of the Naval Safety Center are examined, epileptic seizures as a mishap factor evokes a two-inch thick dumpex of computer paper, while migraine as a mishap factor yields but two isolated cases — and dubious at that.

No one is suggesting that highly complicated or frequent and incapacitating migraines should be ignored in aeromedical disposition. The point to be made is that there is very little real evidence to implicate infrequent migraine as a safety hazard. Consequently it does not seem at all unreasonable to relax a policy on migraine which in any case has been counterproductive.

The issue of migraine has been repeatedly cussed and discussed during my tenure at NAMI, both before the Special Board of Flight Surgeons on numerous occasions as well as before the policy setting Aeromedical Advisory Council. There is no area of aviation medicine which is more controversial. I have stated my own position strongly. Yet I recognize that this remains an area where reasonable men may disagree. Nonetheless, an enlightened policy bearing on this problem appears to be in evolution.

At present, the policy for disposition of flight personnel with a history of migraine is as follows:

1. Individuals who subsequent to designation experience infrequent migrainous symptoms — being two or less episodes per year on the average — are NPQ; however, a waiver is recommended to continue duty involving flying in the class and service group that would otherwise pertain.

2. Candidates for training who have a history of migraine are NPQ, no waiver recommended.

Homer Moore
LCDR MC USN
Neurology Division Officer
NAMI Code 071

WAIVERS

1. There is much misunderstanding concerning the granting of waivers to fly. A waiver may best be considered as permission to the Squadron Commanding Officer to allow someone to fly in spite of the fact that the individual is not physically qualified to do so. This is an individual decision on a case-by-case basis. There are no hard guidelines. Waivers are recommended if it appears to be in the best interest of the Service. Factors considered are: flight safety, economic feasibility, community shortfall, aircraft and mission. Factors not considered are race, sex, "fairness," important friends, or political pressure. A person who is physically qualified does not need a waiver. A person who is not physically qualified may not fly without one.*

**Actually, the Squadron Commanding Officer may do as he chooses if the situation demands it. We, medical officers give advice, not permission.*

2. Waivers are recommended by Medical and granted by the Line. Should a Flight Surgeon do an annual (or other) physical and discover a physical defect, there are certain procedures which must be followed. A letter requesting a waiver of physical standards is written by the Squadron Commanding Officer (see routing below). This letter has no definite format but should include type of aircraft, mission type flown, individual's duties, total time in aircraft, and a statement of impact on flight safety. This letter is appended to the SF-88, 6120/2 or SF-93, and any supporting documents and routed appropriately.

Routing:

Officers (USN/USNR) -From Squadron Commanding Officer
-- Via NAMI-14 -- To CNMPC-43B

Officers (USMC/R) -From Squadron Commanding Officer
-- Via MAG -- Via Wing -- Via NAMI-14 -- To CMC (ASA).

Officers (USNR-R) From Squadron Commanding Officer
-- Via NAVAIRES -- Via Area Commander — Via COMNAV-AIRESFOR (Code 53) -- Via NAMI-14 -- To CNMPC-912.

Navy enlisted (USN/USNR, USNR-R and TAR) -- USN/USNR Active Duty Aircrew -- From Commanding Officer -- Via NAMI-14 -- To CNMPC-404EJ. USNR-R and TAR -- From Commanding Officer -- Via NAVAIRES -- Via Area Commander -- Via COMNAVAIRESFOR (Code 53) -- Via NAMI-14 -- To CNMPC-404EF with a blind copy to CNMPC-913.

Navy Air Controllers are the same as Aircrew except To CNMPC-404DF.

Enlisted Aircrew (USMC. ALL) -- From Commanding Officer -- Via MAG -- Via Wing -- Via NAMI-14 -- To CMC (ASA) with a copy to CMC (MMEA).

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Enlisted air Controllers (USMC) -- from Commanding Officer -- Via MAG (if needed) -- Via Wing -- Via NAMI-14 -- To CMC (ASA) with a copy to CMC (APC).

3. Remember that we must make a decision based on what information we have available. Be overly verbose rather than otherwise. Also remember if a consult looks like an example of Sanskrit Calligraphy to you, it looks the same to us. Don't be afraid to demand legible copy because we certainly will.

4. Questions? Call NAMI (Code 14) at Autovon 922-4502. **SPECIAL NOTE:** MMD Article 15-77(5)(b) Redesignation Aviation Physical Examinations of Naval Aircrewmembers. Correction -- Reads; others must meet the standards of Service Group II, Article 15-72, should read; others meet the standards of Service Group III, Article 15-72.

CAPT Wells

HTLV III TESTING

SecNavinst 5300.30, 4 December 1985 is on the street. Be looking for it. It provides guidelines for HTLV III screening of personnel and management of those personnel who screen positive.

Q/A

Please re-read the President's Column! The SG is clear in his guidance of doing it right the first time. It's a tough job! Your organization, like ours, changes weekly with new personnel coming aboard and old hands departing. In a surprisingly short time the requirements, advice, and procedural techniques, provided by the inspection team from NAMI to those people doing your aviation examinations is lost, forgotten or ignored. But if we are to continue to provide the best qualified people for entrance to Naval Aviation, we must understand the frailties of our equipment and personnel. None of us like to tell an obviously highly motivated young man or woman that they just don't have what it takes to fly NAVY AIR. In years past we could let those individuals who were borderline slide through knowing that they probably wouldn't make it past NAMI and justify our failure by saying to ourselves that NAMI had better equipment and people and we might not be doing the test exactly right and it was better to give the person the benefit of the doubt, etc., etc. Well - Now you're *it!* There are no more excuses which are acceptable because there is *no* backup. So establish your QIA. Train your "new" people. Check that your "old" people are not taking shortcuts, find yourself a black hat and learn to say "Sorry, you are not qualified," when it needs to be said. *Let's do it!!*

CAPT. Angelo

CRASHWORTHINESS

NAMI has had a significant interest in the crash survival aspects of aircraft accident investigation for several years. The 12 hours of classroom instruction to the Student Flight Surgeons should certainly be some indication of the importance of this subject, yet, the FSR's more often than not, fail to address the crash survival aspects. Further, it is never mentioned in any of the mishap messages. For you "quacks" out there in the trenches who may have forgotten, "crashworthiness" is defined as the ability of the basic aircraft structure to provide protection to occupants during sur-

vivable impact conditions. Impact conditions are considered survivable in the cockpit or passenger cabin when the crash forces are within the limits of human tolerances. Lack of "crashworthiness," on the other hand, indicates that the basic aircraft structure, as a protective container, is subject to extensive inward collapse, and subsequently affects the "habitability" of the occupants. In this regard, aircraft, in the process of becoming acutely obsolete, can be very selfish with their occupiable areas. Be aware of "bounce back." This phenomenon occurs when the cockpit and cabin structures, (usually in the vertical-loading crash) collapse on the occupants, but then return to nearly the original shape. Suspect this occurrence when the injuries are out of proportion to the aircraft's post accident condition. Survivability should be considered in all mishaps, and *you can't do it* without calculating the crash forces. That's right -- determining terrain angle, impact angles, velocities, (both vertical and horizontal) and then eventually coming up with the "Gs." (The deceleration forces commonly referred to as the "abrupt stop"). These forces really aren't that difficult to calculate. If you need help NAMI will provide assistance.

Calculating impact deceleration will:

- 1) Establish accident severity and determine if forces were within human tolerance.
- 2) Evaluate the performance of the "tie-down chain" I.E. the seat belt, seat belt anchorage, shoulder harness and anchorage, seat structure and seat anchorage, and the floor.
- 3) Evaluate cargo restraint systems.
- 4) Evaluate aircraft structure integrity.

Once you are the aeromedical investigator/member of the mishap board, have established your "G" forces, and determined survivability tolerance, with or without fatality, you can then "top off" your FSR with design recommendations or modifications to areas just discussed, or even suggest where basic research is needed in attenuating crash forces. Granted, the Flight Surgeon Report, at times, can seem like a futile exercise in checking off lists and plugging up little square boxes, but it is taken very seriously at the Safety Center, and your conclusive findings and/or ideas may be what it takes to effect a life-saving, or injury-reducing design or modification.

For example, we know too well that head and C-spine injuries are all too common due to flailing. The torso is readily tied down -- but no one has figured out what to do with the head, except by making it even more heavy, and more susceptible to flailing, by placing a helmet on it. Perhaps the helmet would provide more protection if it had the means for tying the head to the aircraft via an inertia reel or a similar device. This was looked at once, but fell by the wayside! Support of ideas like this in your accident investigation will lend validity to research in these areas.

The next time you assist with a helo crash, take a good look at the seats and fuel system. The Army and Air Force have instituted crash worthy fuel containment and energy absorption seat systems. The Marines may never have them if you don't jump up and down in tantrum fashion or at least bring it up in the FSR.

The bottom line: If you have calculated the deceleration forces and survivability was possible based upon the known determined human tolerance levels of 25 G's for the Z axis, 45 G's in the X axis, and 15-20 G's in the Y axis (based on about 0.1 second duration) and yet there are no survivors, then something went wrong besides the cause of the crash. This is part of our job as Flight Surgeons, to find out why,

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**FLIGHT SURGEON CLASS 85003
GRADUATES 6 FEB 1986
BILLET ASSIGNMENTS**

Almedia, Sandra A. LT
MAG-26, MCAS New River
Jacksonville, North Carolina

Anderson, Deryk L., LT
NAF Sigonella, Sicily

Beane, Richard A., LT
CVW-1, NAS Cecil Field, FL

Bondesson, Jeffrey D., LT
CVW-9, NAS Miramar, CA

Cicccone, Charles A., LT
MAG-31, MCAS Beaufort, SC

Conte, Douglas R., LT
MAG-26, MCAS New River
Jacksonville, NC

Coasdale, Terry L., LT
MAG-31, MCAS Beaufort, SC

Culpepper, Randall Co, LT
VP-24, NAS Jacksonville, FL

Daniel, John C., LT
NAS Cubi Point, Philippines

Dervay, Joseph P., LT
CVW-3, NAS Oceana, VA

Ecklund, Kirk T., LT
VP-9 NAS Moffett Field, CA

Frailey, Gregory R., LT
MAG-29, MCAS New River
Jacksonville, NC

Galligan, Donald J., LT
3rd MAW, EI Toro, CA

Gober, John D., LT
NAS Meridian, MS

Haselow, William C., LT
MAG-31, MCAS Beaufort, SC

Hiland, David A., LT
CVW-8, NAS Cecil Field, FL

Hyde, William C., LT
CVW-14, NAS Lemoore, CA

Jercinovich, Igor A., LT
VP-19, NAS Moffett Field, CA

Kruger, David H., LT
3rd MAW, Camp Pendleton, CA

Lambert, Deborah S., LT
2nd MAW, MCAS Cherry Pt., NC

Lundy, Diane C., LT
3rd MAW, Camp Pendleton, CA

Mandia, Stephen E., LT
CVW-2, NAS Miramar, CA

McGuirk, Timothy D., LT
VP-10, NAS Brunswick, ME

Morin, Lee Mo, LT
NAVAEROSPMEDINST
(Aerospace/Undersea)

Noll, Karl Ro, LT
MAG-26, MCAS New River
Jacksonville, NC

Schraml, Frank V., LT
2nd MAW, MCAS Cherry Pt., NC

Senter, Cedric H., LT
3rd MAW, EI Toro, CA

Steelman, Michael T., LT
CVW-7, NAS Oceana, VA

Swale, Jerome A., LT
NAS Alameda, CA

Weiner, Richard A., LT
3rd MAW, EI Toro, CA

White, James T., LT
NAF Atsugi, Japan

Woodward, William B., LT
NAS Dallas, TX

Yauneridge, William F., LCDR
MAG-29, MCAS New River
Jacksonville, NC

report it, followed by corrective action recommendations!

Don't be afraid to speak up, and if you need help, let us know.

**George Hill
CAPT MC USN
(RAM)**

ANABOLIC STEROIDS

Anabolic steroids was only a term in the physiology books until recent years. Now newspaper and magazines discuss the "misuse" of anabolic steroids. College athletes and coaches are charged with illegal sale and distribution of these prescription drugs. There is clearly a growing black market for these drugs which many body builders and competitive athletes hope will increase their muscle size and

strength. They are willing to break the law and risk serious side effects despite the lack of experimental evidence to prove that there is a significant increase in muscle size and strength with anabolic steroid use. With their growing popularity and obvious lack of knowledge about them we will be getting more and more inquiries about them.

Recently, I had an anonymous phone call asking if steroids show up in the urine. This made me wonder why someone (I hope this was not an aviator) would want to know unless they were thinking of using them. I did some research on the aeromedical implications of taking anabolic and other types of steroids. The following information is, what I found:

-- Normal men produce 2.5 to 10 mg of testosterone daily, women average 0.23 mg daily.

-- Testosterone is metabolized primarily in the liver and is excreted mainly in the urine as metabolites. So to answer the question, it can be measured in the urine. The urine of

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Olympic Athletes is tested for steroid metabolites and their use is condemned. Synthetic testosterone derivatives are metabolized in a similar manner, but more slowly.

-- Results of experiments that attempt to correlate serum testosterone levels with certain behavioral patterns in men (i.e., homosexuality, aggressive behavior, etc.) have been inconsistent.

-- Attempts to separate the anabolic from the androgenic effects by modifying the testosterone molecule have resulted in the development of a number of synthetic analogues, termed anabolic steroids.

-- Some common preparations used are —Maxibolin, Dianabol, Anavar, Adroyd, and Winstrol.

-- Adverse effects associated with the use of these preparations commonly include: acne, alteration of liver function, reduction of serum gonadotropin and testosterone levels, testicular atrophy, and decreased spermatogenesis. In females, hirsutism, deepening of the voice (irreversible), clitoral enlargement, and menstrual irregularities may occur.

-- Androgens increase the hematocrit and have variable effects on serum cholesterol.

-- Androgenic and anabolic steroids promote tumor growth in men with carcinoma of the prostate.

-- There is a marked variation in sensitivity to steroids among individuals.

-- The use of steroids, including corticosteroids, can have numerous adverse effects. The user may develop: hypertension, increased appetite with excessive weight gain, hyperglycemia, osteoporosis, vertebral collapse, mood changes, irritability, depression, psychosis, seizures, peptic ulceration, arrhythmia, thinning of the skin, decreased resistance to infections, and posterior subcapsular cataracts to name just a few.

During my research I went to a local health club disguised as a body builder interested in obtaining some steroids to help me "add bulk" (and they fell for it!). I was taken to a private office and was given a number to call. I was told that "steroids" were available and guaranteed to work but they would be expensive. Of course there was a hard sell to join the club so the steroids would be more readily available to use along with the weights. The manager did admit that they could be physically harmful if taken in large amounts, but they are safe in the "right" dose which he evidently learned by trial and error. Combination steroid use called "stacking" is practiced with both oral and injectable preparations (JAMA, May 17, 1985). Sometimes five or more are taken simultaneously in amounts nine times the manufacturer's recommended doses.

The use of steroids for the purpose of "body building," or any other non-medically indicated reason for that matter, is dangerous, but is becoming more and more prevalent. This is due in part to their availability, pressure to use them, and the desire for "results" by individuals willing to take chances.

Systemic steroid use by aviators is frightening. The possible side effects such as psychosis, is particularly alarming. Add to this all of the harmful physical side effects of steroids, and it is no wonder that physicians are often loath to prescribe them — even when they have been shown to help in some diseases. They can have long-lasting or permanent effects which can decrease the quality of life or job suitability.

Almost every system in the body is affected in some way by steroids. Worst of all is the fact that an individual interested in "building" his body is really tearing it down in many ways. He is setting himself up for a disaster. This is tragic. As stated earlier, it is not proven to significantly increase muscle size or strength in healthy young men. A regular exercise

program will do this without steroids.

Steroids are not healthy for anyone. In aviators their use cannot be tolerated.

**H.O. Porter, LT MC USNR
Flight Surgeon CTW4**

JOINT COMMITTEE OF AVIATION PATHOLOGY

CALL FOR PAPERS

Fifteenth Biennial Scientific Session of the Joint Committee On Aviation Pathology

7 -9 October 1986

**RAF Institute of Pathology and Tropical Medicine
Halton, England**

Papers are solicited for presentation. Participation by non-military individuals and organizations is invited. The sessions will be oriented toward progress in the various areas of aviation pathology. Specific topics will include but not be limited to:

1. ENVIRONMENTAL HAZARDS
2. ADVANCES IN TOXICOLOGY
3. ACCIDENT INVESTIGATION TECHNIQUES
4. PRE-EXISTING DISEASE

To submit a paper for consideration, abstracts should include:

1. Complete title of paper, name of author(s), degree or rank, and laboratory or office of origin (brief), exactly as they should appear in the program. Also mailing address of author for correspondence.

2. A categorization by the author of the appropriate scientific field to which the paper is related, as listed in the specific topic examples above.

3. The summary abstract should present briefly the rationale and scope of the work, its methodology, the results, possible applications and conclusions.

4. An original and at least **ten legible copies** of the abstract are required. Abstracts must be typewritten, double-spaced, and should not exceed 200-500 words (approximately one double-spaced typewritten page.)

**5. ABSTRACTS MUST BE RECEIVED NO LATER THAN
1 MAY 1986 FOR REVIEW BY THE PROGRAM COMMITTEE.**

In general, the Committee will judge the suitability of the paper in terms of its originality, methodology, scientific import and presentation, and will also strive for diversity and balance in organization of the total program.

Please forward abstracts to:

**Secretary, Joint Committee on Aviation Pathology
Armed Forces Institute of Pathology
Washington, D.C. 20306-6000**

For further information:

(202) 576-3232 Autovon 291-3232

BOOKS

There are two books that should be in every flight surgeon's library for reference:

Clinical Aviation Medicine by Col. Russell B. Rayman USAF (MC) -- \$11.95 from Vantage Press, Inc., 516 West 34th Street, New York, NY 10001. This book is a *valuable* fast reference for medical problems/diseases of significance in aviation. It discusses the condition, the problems associated, significance to aircrew and suggests disposition. Good Stuff!

Fundamentals of Aerospace Medicine Lea and Febiger, 600 Washington Square, Philadelphia, PA 19106-4198. Edited by Roy DeHart, Col. USAF (MC) retired. This is the latest text in Aerospace medicine. Chocked full of the basics as well as a look at everyday requirements. It is well worth the price. There is an order form in Aviation, Space and Environmental Medicine -- \$105.00.

-Editor

-- EDITORIAL POLICY--

The views expressed herein are those of the individual authors and not necessarily those of the Society of U.S. Naval Flight Surgeons.

This Newsletter is published quarterly by the Society on the first of January, April, July and October. Material for publication is solicited from the membership and should be typed **double spaced**, reaching the Editor at least one month prior to the scheduled date of publication. Unsigned material will not be considered. Correspondence should be addressed to:

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HAPPY NEW YEAR AND HAVE A GREAT 1986!!!!