
INTRODUCTION. Head down bedrest (HDT) decreases plasma neurohormone levels by maintaining a nadir within four hours. The purpose of this study was to determine if periodic standing or exercise (+Gz) on this acute suppression of plasma neurohormones.

METHODS. Nine male subjects (mean±SD age 37±2yr, height 192±2cm, weight 83±5kg) were admitted to the Biomedical Operations and Research Facility, four times separated by one month. Each subject was assigned to one of two protocols either 6° head-down or 6° head-up tilt postural exposure. During the pre-bedrest period, subjects were placed in an upright position for 30min prior to lying down. Orthostatic tolerance tests were conducted on the tilted control day on the first two and on day 4 of HDT. Immediately after completion of the tilt test, subjects were returned to the 0° position until the next morning when they were subjected to a 6° head-down exposure (HRD) for 24h. 

RESULTS: Four hours after going HDT produced significant decreases (p<0.05) in serum aldosterone levels (125±32 to 87±23pg/ml), plasma renin activity (PRa), vasopressin (AVP), and cortisol levels by radioimmunoassay. 

CONCLUSIONS: Peripheral upright posture (+Gz) and/or exercise for 4h during each hour negates the acute suppression of aldosterone and NE associated with HDT. 

N95-16780

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In order to evaluate the benefits of periodic standing or exercise (+Gz) as a countermeasure to the physiological responses to 6° head-down bedrest (HDT), we considered a two-tiered approach: (a) use 4 days HDT as a quick and inexpensive method for screening countermeasures; and (b) use a 4-day HDT to validate the most promising candidates. The approach and results of a 4-day study are described here. Methods: Nine male subjects were acclimated to standing or moderate exercise (+Gz) for 24h/day for four days. Subjects were randomized into two equal groups. One group was exposed to 6° head-down bedrest (HDT) for four days. The other group was exposed to 6° head-up tilt (HUT) for four days. Blood samples were collected at baseline, at the end of each hour of HDT or HUT, and following 4h of standing or moderate exercise (+Gz) on the four consecutive days. Indices of orthostatic intolerance such as 

CONCLUSIONS: The 4-day HDT model seems promising for screening a variety of countermeasures alone and in combination before validating their benefits in extended bedrest or light experiments.
ABSTRACT AUTHORS
(with abstract numbers)
ADVANCE REGISTRATION FORM
63rd Annual Scientific Meeting
MAY 10-14, 1992
FONTAINEBLEAU HILTON HOTEL MIAMI BEACH, FLORIDA

REMEMBER:
- Advance registration closes April 17, no refunds will be made for cancellations received after May 1.
- Spouses who have registered with the Wing and wish to obtain CE credits may do so by registering at the AsMA member fee of $160.00
- The reception (black tie optional) prior to the Honors Night Banquet is open to all registrants on Thursday, May 14.
- The Advance Registration Desk, for fast and easy pickup of badges, tickets, and meeting materials, will open at 1 p.m.,
  Sunday, May 10.
- Mail this form with your check to: Aerospace Medical Association
  320 S. Henry Street
  Alexandria, VA 22314-3579

Information for our records:

(name) (degree)

(street address)

(city, state, zip code)

(country)

(telephone number)

Area of Specialty (Please check only one for Association records)

☐ Aerospace Human Factors  ☐ ENT  9. ☐ Nursing  13. ☐ Other (specify)
☐ Aerospace Physiology  7. ☐ Internal Medicine  11. ☐ Research
☐ Biomedical Engineering  8. ☐ Military Command  12. ☐ Surgery

PAYMENT MUST ACCOMPANY ADVANCE REGISTRATION FORM IN ORDER TO BE ADVANCED REGISTERED

(See reverse for payment information)
REGISTRATION FEES (DUES NOT INCLUDED)

MEMBER and AMA Cat I CME Credits @ $160.00 $_____
MEMBER and No Credits @ $110.00 $_____
NON-MEMBER and AMA Cat I CME Credits @ $245.00 $_____
NON-MEMBER and No Credits @ $195.00 $_____
STUDENTS (with valid ID Card) No Charge
(Non-Members are welcome at meal functions)

Sun., May 10 AsMA Welcome (cash bar) No. ______ No charge
Mon., May 11 Civil Aviation Medical Association Luncheon No. ______ @ $ 20.00 $_____
Mon., May 11 Society of U.S. Air Force Flight Surgeons Luncheon No. ______ @ $ 20.00 $_____
Mon., May 11 U.S. Navy Luncheon No. ______ @ $ 20.00 $_____
Mon., May 11 U.S. Army Aviation Medical Association Luncheon No. ______ @ $ 20.00 $_____
Mon., May 11 Aerospace Human Factors Association Luncheon No. ______ @ $ 20.00 $_____
Mon., May 11 Flight Nurse Reception No. ______ @ $ 10.00 $_____
Mon., May 11 Associate Fellows Reception No. ______ @ $ 10.00 $_____
Tues., May 12 Associate Fellows Breakfast No. ______ @ $ 12.00 $_____
Tues., May 12 Association Annual Business Meeting and Buffet Lunch No. ______ @ $ 15.00 $_____
Tues., May 12 Dinner and Shows at the Seaquarium No. ______ @ $ 38.00 $_____
Wed., May 13 Aerospace Physiology Society Luncheon No. ______ @ $ 20.00 $_____
Wed., May 13 Society of NASA Flight Surgeons Luncheon No. ______ @ $ 20.00 $_____
Wed., May 13 Flight Nurse Section Luncheon No. ______ @ $ 20.00 $_____
Wed., May 13 Ibero-American Association Luncheon No. ______ @ $ 20.00 $_____
Thurs., May 14 Space Medicine Branch Luncheon No. ______ @ $ 20.00 $_____
Thurs., May 14 Canadian Society of Aerospace Medicine Luncheon No. ______ @ $ 20.00 $_____
Thurs., May 14 Honors Night Banquet No. ______ @ $ 40.00 $_____

Bank charges for checks drawn on non-U.S. banks @ $ 20.00 $_____

TOTAL ENCLOSED $_____

METHOD OF PAYMENT: Check ______ Credit Card ______
(Make checks payable to the Aerospace Medical Association)

Credit Card: MasterCard_______ VISA_______ (NO OTHER CARDS ACCEPTED)

Card No. ___________________________ Expiration Date ______

Signature______________________________

Mail this form to: Aerospace Medical Association
320 S. Henry Street
Alexandria, VA 22314-3579
HOTEL RESERVATION FORM

AEROSPACE MEDICAL ASSOCIATION
63RD ANNUAL SCIENTIFIC MEETING

1. Complete all information requested and mail form to AsMA Housing Bureau in Miami (see below) by April 17, 1992. NO PHONE RESERVATIONS WILL BE ACCEPTED.

2. An acknowledgment of your reservation assignment will be sent by the Housing Bureau within a 2-week period. Check the acknowledgment immediately to be sure all information is correct. The acknowledgment will be followed by the actual confirmation from the hotel.

3. Reservations must be guaranteed by supplying major credit card information on this form or by sending a one night’s deposit directly to the hotel after confirmation is received from the hotel.

4. All changes and cancellations should be made directly with the Housing Bureau in writing or by FAX (see below). After the cut-off date, last minute changes and cancellations must be made directly with your designated hotel no later than 72 hours prior to arrival for refund.

5. Number all hotels in numerical order of preference. Room assignments are made on a first-come, first-serve basis.

6. In the event your hotel of choice is sold out, the Housing Bureau will secure hotel rooms at the next available hotel.

HOTELS & RATES Number all hotels in order of preference.

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<thead>
<tr>
<th>Hotel</th>
<th>Single</th>
<th>Double</th>
<th>Triple</th>
<th>Quad</th>
<th>Suite</th>
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<td>$100.00 (Jr. Suite)</td>
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Indicate type of room requested:

- Single
- Double
- Triple
- Quad
- Suite

ARRIVAL DATE _______ TIME _______ DEPARTURE DATE _______

Guarantee to: ____________________________________________

Type of major credit card ____________________________________
Credit card number _________________________________________
Expiration date ____________________________________________

NAME OF OCCUPANTS (Bracket names sharing room)

__________________________________________

__________________________________________

__________________________________________

Person to whom confirmation should be mailed:

Name ___________________________________________

Company _________________________________________

Address _________________________________________

City ___________ State ______ Zip _________________

Phone Number (______ ) __________________________

COMPLETE & MAIL FORM TO:

AsMA HOUSING BUREAU
701 Brickell Avenue-Suite 2700
Miami, FL 33131

FAX NO: (305)539-3113
63rd Meeting of the Aerospace Medical Association

ADVANCE REGISTRATION FORM

FOR SPOUSES OF AsMA MEMBERS

Please read the entire form (both sides) before filling out.

Advance Registration closes April 1 — No refunds after April 10.
Fill out a separate registration form for each person.
Enter the number of tickets desired in the box in front of the activity.
Enter the total AMOUNT of ticket(s) on the line after each activity.
Send your Advance Registration directly to the WING. DO NOT include your registration with your spouse's.
Everyone, including International Members, must send check or money order, payable in U.S. dollars with their Advance Registration to guarantee a place on the tours.
International Members may direct transfer of funds to the Riggs Bank, Washington, D.C., account number 07-08041026.

Wing Dues (for calendar year 1992 billed September 1991) ................. $20.00 $ ______
   _____ New Member '92  _____ Renewal  _____ Dues Paid '92
Compulsory Registration Fee ........................................ $25.00 $ ______
MONDAY, MAY 11
□ The WING Welcoming Reception for REGISTRANTS ONLY ................. $ FREE
   Starlight Terrace Room, Doral Hotel
TUESDAY, MAY 12 (See back for details)
□ Tour #1 MIAMI GUIDED Half Day Tour ................................... $17.00 $ ______
□ Tour #2 FLAMINGO GARDENS Half Day Tour ........................... $21.00 $ ______
□ Tour #3 JOHN PENNEKEMP Full Day Tour ............................ $42.00 $ ______
WEDNESDAY, MAY 13
ANNUAL WING MEETING and LUNCHEON ................................ $24.00 $ ______
   □ Tour #4 VILLA VIZCAYA ........................................... $17.00 $ ______
THURSDAY, MAY 14
□ Tour #5 EVERGLADES Half Day Tour ................................... $26.00 $ ______
□ Tour #6 PALM BEACH Full Day Tour .................................. $32.00 $ ______
MONDAY-THURSDAY 6:30-7:30 a.m.
□ Aerobics—Club Atlantic Room, Fontainebleau Hilton Resort and Spa .......... $ FREE
   TOTAL $ ______

Make check payable to the Wing of AsMA
Please type or print clearly:

Name ____________________________ First Name ____________________________ Spouse's Name ____________________________
Last Name ____________________________ Address ____________________________ City ____________________________ State ______ Zip ______
Affiliation:      ___ Army     ___ Navy     ___ Air Force     ___ Corporate  ___ Civilian     ___ Exhibitor
☐ I am a Charter Member of the WING
☐ Phone ____________________________

Mail this form and your check to:

PAULA LANDRY
8128 Langbrook Road
Springfield, VA 22152
THE WING OF AsMA — ANNUAL MEETING INFORMATION

WELCOMING RECEPTION. Meet and make friends at the WING reception to be held in the beautiful Starlight Terrace Room in the Doral Hotel, a short walk north of the Fontainebleau Hilton. Reception begins at 3 p.m. Free to all REGISTRANTS.

TOUR #1: MIAMI GUIDED Half Day Tour: Tuesday, May 12, 9:30 a.m.-1:00 p.m. .......... $17.00
Miami is a magical city! Join a step-on guide who will highlight the great homes of the rich and famous. Sites on this tour include Miami’s Central Business District, the Art Deco District, Coconut Grove, Little Havana, and Coral Gables.

TOUR #2: FLAMINGO GARDENS Half Day Tour: Tuesday, May 12, 1:00 p.m.-5:00 p.m. .......... $21.00
Visit 60 acres of LUSH botanical gardens, exotic native plants, citrus groves, arboretums, 19 champion trees, and 200 year old oak trees. A half-mile tram-tour meanders through a natural habitat of flamingos, wading birds, alligators, and crocodiles.

TOUR #3: JOHN PENNEKEMP Full Day Tour. Tuesday, May 12, 9:30 a.m.-4:30 p.m. .......... $42.00
After a brief stop at Cauley Square, an historical railroad village and present-day collection of assorted shops, it's south to Key Largo for a day of fun and adventure in the sun.
  Option A: Luncheon Buffet and Glass Bottom Boat Trip: Enjoy a delicious lunch at the Cascades Restaurant, Holiday Inn Key Largo and then board the 70 ft., air-conditioned glass-bottom MV Key Largo Princess to explore Florida's coral reefs.
  Option B: Sundiver Snorkeling Trip: The more adventurous can try snorkeling off the Sundiver for 2 1/2 hours of breath-taking marine sights! Equipment and instruction included in package. Lunch not included.

ANNUAL WING MEETING AND LUNCHEON: Wednesday, May 13, 11:30 a.m.-2 p.m. .......... $24.00
Club Atlantic Room, Fontainebleau Hilton Resort and Spa.

TOUR #4: VILLA VIZCAYA Half Day Tour. Wednesday, May 13, 2:30 p.m.-5:00 p.m. .......... $17.00
Visit this great Italian Renaissance mansion and step back in time. Built in 1914 by John Deering as a winter retreat, this historic site is a must.

TOUR #5: EVERGLADES Half Day Tour. Thursday, May 14, 9:30 a.m.-1:00 p.m. .......... $26.00
Board an airboat at Everglades Holiday Park, and tour through natural vegetation and wildlife to the Native Indian Village. An Indian guide will update us on the history of the Miccosukee and Seminole culture, including an alligator show.

TOUR #6: PALM BEACH Full Day Tour. Thursday, May 14, 9:30 a.m.-5:00 p.m. .......... $32.00
Visit the official playground of society’s rich and famous, the arena for scandal and controversy. Sights include the Kennedy mansion and Trump’s famous Largo Mar. Following lunch at the picturesque Grand Colony Hotel, we will tour Florida’s Worth Avenue for shopping.

*All tours depart from Collins Avenue entrance.

WING HOSPITALITY ROOM is located in IMPERIAL I Room of the Fontainebleau Hilton Hotel. Hours: Sunday 1-5 p.m., Monday 10:30 a.m.-1:30 p.m., Tuesday 8-9:30 a.m., Wednesday 8-9:30 a.m.

AEROBICS classes will be taught by Lt. Col. Lynn Francis in the Club Atlantic Room, Fontainebleau Hilton, Monday through Thursday, 6:30-7:30 a.m. Col. Francis is a certified aerobics instructor and has kindly volunteered her services to the WING. FREE

ADVANCE REGISTRATION—Individual packets, provided for those who pre-register, will contain schedules, reception invitation, official badge, and purchased tickets. Hours: Sunday 1-5 p.m., Monday 10:30 a.m.-1:30 p.m., Tuesday 8-9:30 a.m., Wednesday 8-9:30 a.m. Carefully fill out the advance registration form, write your check, and mail them to:

PAULA LANDRY
8128 Langbrook Road
Springfield, VA 22152
Aerospace Medical Association  Associate Fellow Application and Biographical Update Form

(Check item that applies) This is an application for Associate Fellow status _____ A biographical update _____

Guidelines for Applicants and Associate Fellows updating biographical information

1. To apply for Associate Fellowship, fill in and return this form to Association Headquarters by August 1 each year.
2. To update biographical information, submit this form to Associate Fellows' Group by September 1 each year, indicating new information or publications with asterisks (*). Include a new bibliography if new publications are to be considered.
3. Curricula vitae are not acceptable in place of the information requested on this form. The only permissible enclosures are a bibliography and one continuation sheet if there is insufficient space in any of the 11 subject areas of this form.
4. To be sure you get full credit for your qualifications and achievements, all requested information should be as complete and detailed as possible. Redundant and immaterial information (e.g., attendance at a 2-day meeting, listing in "Who's Who", etc.) should not be included. Please print or type the following information:

1. **Name:** Last name ___________________ First & Initial __________________ Title/mil. rank: __________________

   Current address: ____________________ Telephone: __________________

   Date & place of birth: __________________ Citizen of: __________________

2. **Years in Aerospace Medicine or related field:** Full-time _____ years; Part-time _____ years.

3. **AsMA Member since** (years) _____ If Associate Fellow: Year selected (years) _____

4. **EDUCATION & TRAINING:**

   Highest Degree: __________________ Year Awarded: ________ Institution: ______________

   Add'l Degree: __________________ Year Awarded: ________ Institution: ______________

   **Post-Graduate Training:** Residency (Specialty?), other training; Institution, Tng. time for each:

   ____________________________________________________________

   ____________________________________________________________

   ____________________________________________________________

   Courses in Aerospace Medicine or related field (eg, Aerospace Physiology) of more than 3 wks duration:

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<th>Duration</th>
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   5. **CERTIFICATION** by Specialty Board or other National Examining Agency:

   Specialty __________________ Board/Agency __________________ Year certified: ________

   ____________________________________________________________

   6. **CURRENT POSITION & EMPLOYER**

   Previous three most significant positions, with dates:

   ____________________________________________________________

   ____________________________________________________________

   ____________________________________________________________

   7. **PROFESSIONAL PRODUCTIVITY**

   Number of published papers in aerospace medicine _____ in other fields _____ (attach bibliography)

   No. of presentations at **national** scientific meetings _____ (Do not duplicate publications and presentations)

   FAA AME seminars: No. attended: _____ Year(s): ____ No. taught: _____ Year(s): ____

   (Continue on other side of page)
8. **ACTIVITY IN AsMA and Constituent Organizations**

**AsMA Annual Meetings:** No. attended ___________________ Dates ___________________

Scientific papers presented ___________________ Panel presentations ___________________

AsMA Committee Member: Years ___________________

____________________

AsMA Committee Chairperson: Years ___________________

AsMA Executive Council Member or Officer: Years ___________________

AsMA Honor Award(s) (Name of Award, Year Received)

____________________

**Constituent Organizations:**

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<th>Organization</th>
<th>Date Joined</th>
<th>Officer (Years)</th>
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Constituent Organization Honor Award(s) (Name, Year): ___________________

Associate Fellows: Officer (dates) ___________________ Award (date) ___________________

9. **OTHER:**

Pilot (ratings) ___________________ Flight Surgeon ___________________

AME or equivalent ___________________ Member of International Academy ___________________

Member of or Consultant to National Government body in Aerospace Medicine (specify):

____________________

Member or Officer in other Aerospace Societies (List)

____________________

____________________

Honors, Awards, Distinctions, Achievements (List)

____________________

____________________

Significant Operational or Clinical Contributions; patents held, etc.

____________________

10. **COMMENTS, ADDITIONAL DATA** including membership and activities in Affiliate organizations:

____________________

____________________

____________________

11. **REFERENCES** (Applicants only):

Print the names of two AsMA members, including one Fellow, who are acquainted with your professional activities

**Date of submission:** ___________________ **Signed:** ___________________

Revised 3/15/91
Aerospace Medical Association

1993 ABSTRACT SUBMISSION FORM
Deadline: OCTOBER 23, 1992

Topic No. (see reverse side): 1st______ 2nd______

Mode Preference (check one): Slide____ Poster____ Either____ Coordinated Panel____

Panel Title: ____________________________

Name and address for correspondence:

Work phone number:

I affirm that this is original work which will not appear else-where before the meeting. I hereby grant permission for the AsMA to tape record the verbal presentation (if a slide session or panel).

Signature of first author/presenter
First author is:
☐ Full or part-time student in field of this research
☐ Resident Physician
☐ Making first presentation at an AsMA meeting

7. Use the following format:
   a) Title in CAPITAL LETTERS using significant, descriptive words.
   b) Authors (initials then last name), all underlined, Identify AsMA member-authors with an asterisk (*).
   c) Institution where work was done.
   d) Indent first line of text 3 spaces. Rest of text is a single paragraph, single spaced, with no photos, and no type smaller than Elite. (Printing is reduced to 60% of original size.)

8. THIS ORIGINAL BLUE-BOX FORM MUST BE USED.

THIS ORIGINAL BLUE-BOX PAGE AND 5 PHOTOCOPIES OF THIS PAGE MUST BE RECEIVED BY OCT. 23, 1992

DO NOT FOLD!!!!!!!
MAIL FLAT!!!!!!!

Send to:
COL David J. Wehrly, MC, USA
Program Chairman
Aerospace Medical Association
320 S. Henry St.
Alexandria, VA 22314-3524

ATTN: Abstracts
CALL FOR PAPERS

DEADLINE: OCTOBER 23, 1992

Aerospace Medical Association
1993 ANNUAL SCIENTIFIC MEETING

The 1993 Annual Scientific Meeting of the Aerospace Medical Association will be held May 23-27 at the Sheraton Centre Hotel, Toronto, Ont., Canada. The scientific sessions will emphasize new findings in aviation, space, and environmental medicine. All interested persons are invited to submit abstracts of studies which they wish to present as slide talks or poster presentations. Abstracts which meet format requirements will be reviewed by three or more members of the Scientific Program Committee and will be judged on originality, relevance, and scientific quality. Accepted abstracts will be published in the Association's journal, Aviation, Space, and Environmental Medicine.

PLEASE NOTE: Since publication will be by photo-offset, the special abstract submission form (overleaf) with the non-repro blue box MUST be submitted. FAXes are not acceptable. DO NOT draw around the box so that it will reproduce in a copying machine. Neatness and accuracy of the original are of paramount importance. Sharp, black, elite-size (10 pt) type or larger is required. Do not erase--use correction fluid if necessary. Extra copies are available from the Aerospace Medical Association, 320 S. Henry St., Alexandria, VA 22314: phone (703) 739-2240.

RULES FOR SUBMISSION OF ABSTRACTS:
A. Slide and Poster Presentations:
1. Only original material which has not been published or presented at other major meetings is acceptable. The first author is required to sign a statement which affirms that. Be sure that the necessary clearance has been obtained before submitting an abstract.
2. An individual may present only one paper and must appear as first author on the abstract (1st author = presenter.)
3. One author must be a member of AsMA (identified by * in the abstract). If none of the authors is a member of the Aerospace Medical Association, the abstract must be accompanied by a note of introduction for the first author signed by an AsMA member.

4. Slide sessions allow 10 min of verbal presentation followed by 5 min for questions. Poster sessions are assigned display space for 3 hours with the author expected to be present for at least 1.5 hours. The Program Chair retains final authority to select the presentation mode.
5. Abstracts MUST be submitted on this form (with BLUE BOX) along with five photocopies. FAXes are not acceptable. DEADLINE: Oct. 23, 1991. Submissions which are not received at AsMA headquarters on time or which do not conform to the rules given here and on the reverse side will be rejected.
6. Each abstract must show the title, author, and institution where the work was performed. The text must include an introduction (rationale), methods, results, and conclusions: it is inadequate to state "results will be discussed." The format is shown in the example on this page, and further details appear on the Abstract Submission Form (see reverse side). An abstract will be rejected if it does not clearly demonstrate new data of significant interest.
7. For case histories, clinical papers, CME topics, and panels, the text may deviate from the prescribed format.

B. PANELS:
Overview-type abstracts will be accepted of panel moderators. Individual panel members must also submit abstracts and their submissions must conform to the same deadline and the same rules as all other abstracts. The overview abstract with the abstracts of each presentation must be submitted together in one package. The panel will not be considered for presentation unless all abstracts have been submitted for review.

Regarding publication: Those panel abstracts by individuals--if submitted on time and if approved by the Scientific Program Committee--will be published along with other scientific abstracts in both the program and in the May issue of the journal. Overview abstracts and certain non-substantive panel abstracts will be printed only in the program, but will not be reprinted in the May issue of the journal.

TOPICS:
1. Aviation Medicine
2. Space Medicine
3. Environmental Medicine
4. Aerospace Physiology
5. Exercise Physiology
6. Neurophysiology/Vision
7. Acceleration, Escape, and Impact
8. Human Factors and Man-Machine Interactions
9. Flight Safety and Accident Investigation
10. Performance/Psychology/Psycho-physiology
11. Nursing
12. Medical Standards and Health Maintenance of Aircrew
13. Health Promotion and Wellness Programs
14. Aerospace Occupational Health
15. Other Related Topics

† Study was performed under US Navy contract N60001-88-C-0007. The work was performed with the support of the U.S. Department of Defense under contract No. N60001-88-C-0007.

‡ Study was performed under the auspices of the U.S. Department of Energy.

HELI OPTER IN-FLIGHT HEAT STRAIN AND EFFECT OF PASSIVE MICROCLIMATE COOLING. G. R. Banta. Naval Health Research Center, San Diego, CA 92138-917A.

INTRODUCTION. High heat loads due to engine exhaust intake and high ambient temperatures within a helicopter fuselage during flight, specifically hover, have resulted in reported episodes of symptomatic heat strain among aircrew. An In-flight study was conducted to assess: a) in-fuselage ambient temperature during Navy H-3 helicopter at-sea operations in a high heat environment (Persian Gulf); b) presence or absence of any cardiac strain or excessive physiological heat load; and c) effectiveness of reducing these responses by wearing a protective cooling (ice) vest (IV). METHODS. Fifteen helicopter aircrew were monitored (heart rate (HR), skin (SK)/rectal (RT) temperatures) in both IV and non-IV conditions during flight while wearing standard flight equipment. RESULTS. Across all flights and flight conditions (PC), average ambient temperatures were 38° C dry bulb [range 33° C (in-flight) to 43° C (hover)]. HR was greatest during hover and on-deck, range 89.9-143.0 bpm for rest and workload. Corresponding HR with IV, range 79.9-85.9 bpm were significantly reduced (p<0.05). RT was not found to be different during IV/non-IV or PC, however, ANOVA demonstrated interaction of individual skin sites and mean weighted skin temperature with IV/non-IV and PC (p<0.05). CONCLUSION. Aircrew performing at-sea in-flight helicopter operations in an area of high ambient heat are subject to heat loads that may produce cardiac strain and potential heat stress conditions. Wearing of a protective cooling vest appears to reduce this threat.

Actual size after reduction to 60%