

USACHPPM TODAY

Volume 8, No. 2

July 2001

A U.S. Army Center for Health Promotion and Preventive Medicine News Bulletin



Sun Protection Questions and Facts for Soldiers

Why should I protect myself from the sun?



Sunburn is the most common injury. In snow-covered areas, soldiers risk sunburn and "snowblindness," a brief painful swelling of the eye. High lifetime sun exposure increases the risk for skin cancer and cataract blindness. One American dies every hour from skin cancer.

How do I protect my skin?

Seek shade, and use your uniform to cover your arms and legs. Wide-brimmed hats can protect the head and neck, or use sunscreens with high Sun Protection Factors (SPF's) and ideally reapply every couple of hours.



How do I protect my eyes?

Sunglasses with wraparound design work well, protecting at the front and side. Wide-brimmed hats can also be used. Use goggles in snow-covered areas.

When should I protect myself?

Roughly midday, from 10 am to 4 pm. Use the rule "Short Shadow? Seek Shade!" Sensitive-skinned individuals get a light sunburn in about 35 minutes when their shadow is as long as their height, but need over 90 minutes when their shadow is twice as long.

The Shadow Rule for UV Protection

Short shadow, shorter than your height = High UV
Long shadow, longer than your height = Low UV



See medical personnel if you have questions about sun injuries.

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LET US KNOW

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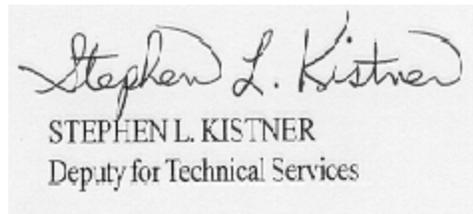
Make your subject: USACHPPM TODAY

If you have comments or questions concerning USACHPPM or any of its services, or wish to obtain any of the education materials we have available, please contact us.

We receive many calls and comments from our readers on what they read and what they would like to read. To those of you who have responded, "Thank you". Your input is important to us. To the rest of our readers, we would like to say "Let Us Know". If you have specific questions of if there are any topics you would like to see covered, send us an e-mail or write/call us.

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A MESSAGE FROM THE COMMANDER U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE



BG Lester Martinez-Lopez

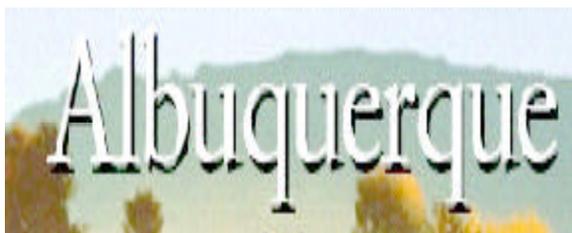
On behalf of the Center for Health Promotion and Preventive Medicine staff, it is a pleasure to welcome you to Albuquerque, New Mexico, and the 4th Annual Army Force Health Protection Conference. The city of Albuquerque, the Albuquerque Convention Center, Kirtland Air Force Base, and the surrounding community have provided an awesome welcome for us and have afforded us a great opportunity to share some of the tremendous knowledge available in the preventive medicine community.

The theme of our conference this year is Force Health Protection – Service to the Soldier. This forms the framework for our multidisciplinary program of scientific and technical presentations designed to bring all of us together on the same sheet of music. We need to share the information presented at this conference. As the Army Preventive Medicine community moves toward the fulfillment of General Shinseki's vision of the Army transformation, we will be required to open ourselves to new ideas that will help us tackle all the challenges that we will be facing. Learning to work together is an important step in this process.

We are delighted to welcome so many members of our sister services as well as visitors from around the world. We are particularly pleased to offer you an opportunity to network with and learn from not only your colleagues, but also those who work in diverse areas with unique populations.

I would like to urge you to make use of the time outside of the conference sessions to become acquainted with the Albuquerque area and its warm and friendly people. There are a lot of fun things to do here in Albuquerque, and there is a wealth of information available from the many technical organizations in the area. In addition, we will be having many get togethers for the conference attendees, including our FHP Social on Wednesday evening. I look forward to seeing all of you there.

In closing, I encourage you to take advantage of this opportunity to share the latest and the greatest from our respective fields, renew old acquaintances, and make new contacts. If you have questions, concerns, or suggestions about the conference, please feel free to contact any Force Health Protection Conference staff member during the conference.



Some Points of Interest in the Albuquerque Area

The Albuquerque Museum - 2000 Mountain Road, NW - 505-242-4600 City of Albuquerque operated museum of art and history with special exhibits, classes, programs, and speakers.

Indian Pueblo Cultural Center - 2401 12th Street NW (1 block North of I-40) 505-843-7270 Discover the art, history and culture of the region's 19 American Indian Pueblos. Center managed by all New Mexico's pueblos and includes Indian dances, museum, theater, tours, gallery, gift shop, restaurant, etc.

National Atomic Museum - located on Kirtland Air Force Base in Albuquerque approximately six miles from the airport. Telephone number is 505-284-3243. Serves as America's museum resource for nuclear history and science. The Museum presents exhibits and quality educational programs that convey the diversity of individuals and events that shape the historical and technical context of the nuclear age.

The New Mexico Museum of Natural History and Science - 1801 Mountain Road, NW - 505-841-2800 Near Albuquerque's Old Town, the museum provides exhibits, a Dynatheater, a Planetarium, Virtual Voyages, etc.

Petroglyph National Monument - 6001 Unser Blvd. NW 505-899-0205 Over 20,000 prehistoric and historic Native American and Hispanic petroglyphs. The monument stretches 17 miles along Albuquerque's west side.

Old Town - bordered by Rio Grande Blvd., Mountain Rd., 19th St. and Old Town Rd. Albuquerque's historic Old Town is where 18th century architecture provides a charming atmosphere for strolling, artwork, jewelry, dining, etc.

Rio Grande Botanic Garden - 1601 Central NW Beautiful gardens and ponds, including extensive xeric plants in the Desert Pavilion, aromatic species in the Mediterranean Pavilion, and Butterfly Pavilion.

Sandia Peak Ski and Tramway - #10 Tramway Loop NE 505-856-6419 World's longest aerial tramway lifts you to the top of Sandia Peak. Biking and skiing information as well.

Sandia Mountain Wilderness - area lies primarily on the western slope of the Sandia Mountains, but it crosses over to the eastern side at the north and south ends. This 37,000-acre wilderness borders Albuquerque's east side with 117 miles of trails. Elevation averaging 10,000 feet.

FORCE HEALTH PROTECTION (FHP) CONFERENCE



The Fourth Annual Force Health Protection Conference will be held 26 – 30 August 2001 at the Albuquerque Convention Center, Albuquerque, NM. The conference will be hosted by USACHPPM.

The conference will provide the multidisciplinary military and civilian force health protection community with the opportunity to increase knowledge and awareness of current issues, attend short courses for professional development, mentor, network, and earn CEUs or CMEs.

It will be organized in three tracks:

Life Sciences – technical aspects of prevention/detection of environmental, occupational, and disease threats to the health and performance of DOD personnel. Included are research and development in support of the soldier, and veterinary services to include food and water sanitation.

Clinical Sciences – the science and delivery of preventive medicine services. Clinical and general preventive services to include immunization, occupational medicine services, industrial hygiene, hearing conservation, vision conservation and associated services are found here.

Environmental Sciences – topics related to identifying, assessing, and providing recommendations for protecting soldier health. This includes environmental health topics such as industrial hygiene, food and water sanitation, medical surveillance, entomological services, health physics, hearing conservation, field sanitation, and disease prevention.

Potential short courses include: Military Audiology, Risk Communication, Exposure Assessment Statistics Refresher, Special Medical Augmentation Response Team, and Humanitarian Assistance Response.

Participants are invited to prepare and display technical posters that will be judged for content and aesthetics by a panel of subject matter experts. The winners will be announced on the final day of the conference. USACHPPM will approve all posters, selecting the 10 best submissions for partial central funding of travel and per diem.

For additional information and/or to enroll: <http://chppm-www.apgea.army.mil/fhp> POC: LTC Roxanne E. Baumgartner, Director, DSN 584-7387, 410-436-7387, or 1-800-222-9698; or Ms. Jane Gervasoni, DSN 584-5091, 410-436-5091, or 1-800-222-9698.

Change of Command

USACHPPM-WEST

On 13 June, Lt. Col. John J. Ciesla relinquished command of USACHPPM-WEST, Fort Lewis, WA, to Lt. Col. Thomas J. Little. The Reviewing Officer was Brig Gen Lester Martinez-Lopez. Little's previous assignment was Deputy for Technical Services, USACHPPM-Pacific, Camp Zama, Japan. Ciesla, who has served as commander of USACHPPM-West since 5 March 1999, will go on to a new assignment at the Corps Surgeon's Office, Fort Lewis.



USACHPPM-SOUTH



On 15 June, Lt Col Robert J. Lipnick, passed the Unit Colors to Maj. Van Sherwood in an Assumption of Command ceremony presided over by Brig Gen Lester Martinez-Lopez. Lipnick will be Assistant Professor, Department of Preventive Medicine and Biometrics, at the Uniformed Services University of Health Sciences.

USACHPPM-SOUTH



Front - BG Martinez; Left - LTC Gordon; Right - MAJ Sherwood; Back - SFC Brown

On 16 July, Lt. Col. Scott W. Gordon received the Unit Colors from Maj Van Sherwood in a Change of Command ceremony presided over by Brig. Gen. Lester Martinez-Lopez. Notable attendees included the USACHPPM Sergeant Major, and senior AMEDD personnel from the post and surrounding community. Lt. Col. Gordon comes to USACHPPM-South after three years at the Uniformed Services University of Health Sciences as a senior staff instructor.

USACHPPM-NORTH

On 29 June, Lt. Col. Steven P. Jones relinquished command of USACHPPM-North, Fort George G. Meade, MD, to Lt. Col. Laurie A. Cummings. The reviewing officer was Brig. Gen. Lester Martinez-Lopez. Jones' next assignment will be working Army occupational health issues in the Deputy Assistant Secretary of the Army for Environment, Safety and Occupational Health, Office of the Assistant Secretary of the Army (Installations and Environment). Cummings previously served as Chief, Environmental Engineering Division, USACHPPM-Europe.



USACHPPM Personnel

ARMY ENVIRONMENTAL SCIENTISTS WIN WHITE HOUSE AWARD



Pat Rippey (left) and Beth Martin pioneered the training program for DOD on buying items made from recycled materials like those shown.

A visit to the White House is an exciting event. Just ask two employees who were invited to a ceremony held on June 12. Pat Rippey and Beth Martin, both Environmental Scientists with the Ground Water and Solid Waste Program, won a 2001 White House Closing the Circle Award. They were winners in the Education and Outreach category for services they provided in the areas of recycling, pollution prevention, and affirmative procurement. John Howard, Jr., the Associate Director of the White House Council on Environmental Quality, along with DOD dignitaries, presented the award. He said, "Each of you winners already has done so much - as stewards and leaders - to improve the quality of life for your fellow employees, neighbors, families, and communities. With your and others' help, we have made tremendous progress - and we know we

have more to do - to preserve our natural heritage, safeguard the land around us, and leave to future generations a nation of fresh air, clean water, and natural beauty." As a job-sharing team, Rippey and Martin provide technical services to Army installations worldwide in the areas of solid waste management, environmental compliance, and environmental contamination. Over the past 18 months, they have devoted a substantial amount of time to providing training seminars to Army bases on a mandatory program that requires Federal purchases to include items made with recycled materials. This "buy recycled" program is called Affirmative Procurement. They developed a training seminar to teach Federal employees about the requirements and how to implement an Affirmative Procurement Program. In January 2000, they began traveling to Department of Defense facilities to teach the class, and have conducted 25 seminars to date. This effort, along with other training tools and information provided through their web site, was the basis for their nomination for the White House Award.

In addition to the Affirmative Procurement seminar, the team has authored Integrated Solid Waste Management Plans for 8 Army installations and 12 Pollution Prevention Plans. Martin developed the proposal for a recycling program that resulted in the diversion of 1,640 tons of waste from the landfill and revenue of \$90,000, annually. Rippey recommended recovery of building materials providing \$20,000 in cost savings and diverting 178 tons of debris from the landfill for a single demolition project. Applying this procedure for 13 other buildings slated for demolition will save the installation \$260,000 and divert 2,314 tons of waste from disposal. These are just a few examples of the benefits, both economic and environmental, that the Army has gained from their expertise. Their hard work and dedication to the Army and the environment were recognized at the national level when they received the White House award.

THE PRESTIGIOUS LOVELL AWARD

Veronique D. Hauschild, Environmental Scientist, Deployment Environmental Surveillance Program, received the 2000 Joseph Lovell award on May 18. She is the 22nd recipient of this award, unique to USACHPPM.

Named in honor of the first Army Surgeon General, a vigorous supporter of preventive medicine, the award is presented annually to a civilian or military scientist, engineer, health professional, or technician who has demonstrated exceptional initiative, creativity, innovative ability, and professional excellence in his or her occupational field.

Hauschild joined the U.S. Army Environmental Hygiene Agency as a junior environmental scientist, serving as project officer and manager for numerous, complex, important, and highly visible projects. She initially served as a project officer in the Hazardous and Medical Waste Program, and then later served in the Environmental Health Risk Assessment Program. She was assigned to oversee the development of chronic oral toxicity values for military chemical agents by a multi-disciplinary team, which were reviewed by the National Research Council's Committee on Toxicology. These toxicity standards were officially published by the Army Medical Department (AMEDD) in February 2000.

She led a team that developed short-term exposure chemical exposure guidelines for use during military deployments. Technical Guide 230A, Short Term Exposure Chemical Exposure Guidelines for Deployed Military Personnel, filled an important gap in the AMEDD's ability to provide advice to commanders on the risks posed by occupational and environmental hazards during deployments. It received wide acclaim from users throughout the DOD and has been recommended as the primary reference by the Joint Staff.

Hauschild served on a DOD workgroup to develop the DOD Strategy to Address Low-Level Chemical Warfare Agent Exposures. She also led an evaluation of the Airborne Exposure Limits for Occupational and General Population Exposures to G Agents, VX, and Sulfur Mustard that was completed



in November 2000. Serving as an ad-hoc member of a multi-agency workgroup, she facilitated the development and publication of Acute Exposure Guideline Levels for chemical warfare agents. Her efforts and accomplishments were recognized as part of a recent Vice Presidential National Performance Review Award (i.e. Hammer Award). She continued the development of deployment exposure guidelines with the draft publication of CHPPM Technical Guide 230B, Long-Term Chemical Exposure Guidelines for Deployed Military Personnel.

Hauschild possesses exceptional abilities in communicating complex health issues to a variety of audiences. Her dedication and focus while working on multiple competing projects and persistence in the face of organizational opposition to innovative approaches is truly remarkable.

Brig Gen Lester Martinez-Lopez, Commander, CHPPM, introduced the keynote speaker, Mr. Raymond J. Fatz, Deputy Assistant Secretary of the Army for Environment, Safety and Occupational Health, Office of the Assistant Secretary of the Army (Installations and Environment) at the ceremony.

FELLOW OF OCCUPATIONAL AND ENVIRONMENTAL MEDICAL SOCIETY

Coleen B. Weese, M.D., MPH, Program Manager, Occupational and Environmental Medicine, and Lt. Col. Richard W. Kramp, Occupational Medicine Physician, are among 25 physicians selected for the 2001 Class of Fellows by the American College of Occupational and Environmental Medicine (ACOEM), an international society of 7,000 occupational and environmental medicine physicians who provide leadership to promote optimal health and safety of workers, workplaces, and the environment

Fellow is the highest class of membership with OCOEM. It recognizes individuals who have been engaged in the practice of occupational medicine a lengthy period of time, have achieved a significant position of expertise within the specialty, and are certified by a medical specialty board acceptable to the ACOEM Board of Directors.

ACOEM recognized Weese and Kramp at its 86th annual membership meeting in San Francisco during the American Occupational Health Conference, the world's largest meeting of occupational health professionals.

Weese earned her medical degree from the University of Southern California School of Medicine, Los Angeles, in 1986, and her master in public health at Johns Hopkins School of Hygiene and Public Health, Baltimore, in 1991. She is board certified in occupational medicine and public health and general preventive medicine, and is also the past president of the Maryland College of Occupational and Environmental Medicine – a component of ACOEM.

Kramp earned his medical degree from the Uniformed Services University of the Health Sciences, Bethesda, MD, in 1983, and his Master's of Public Health at Johns Hopkins School of Public Health in 1992. He is board certified in occupational medicine and also is the secretary of the Maryland College of Occupational and Environmental Medicine – a component of ACOEM.

ACOEM, an international society of more than 7,000 occupational and environmental medicine physicians, provides leadership to promote optimal health and safety of workers, workplaces, and the environment by the education of health professionals and the public; stimulating research; enhancing quality of practice; guiding public policy; and advancing the field of occupational and environmental medicine.



THE FERRIS STATE UNIVERSITY DISTINGUISHED ALUMNUS AWARD FOR 2001



The Ferris State University (FSU) Distinguished Alumnus Award was bestowed on Lt Col Robert S. Buckingham, USAF, for demonstrated leadership and service to his profession, community, service organizations, and alma mater. Buckingham is the 145th recipient from over 85,000 graduates.

For the past 20 years, Buckingham has put his optometry degree to work for our country through his service in the US Air Force. He is the Air Force liaison to the Tri-Service Vision Conservation and Readiness Program and is the past program manager of the Defense Vision Information System.

A talented optometrist and dedicated officer, Buckingham also served the United States as the principal investigator for the Department of Defense's Vision Health Readiness and Small Arms Firing Range Studies, chief editor of the Air Force Optometry Handbook and Web master of the Air

Force Optometry homepage. Buckingham was the Armed Forces optometric Society's Optometrist of the Year for 2000 and has received countless other awards and honors for his efforts.

In addition to a career that is, by its very nature, public service, Buckingham has poured his time, talents and energy into the communities where he has been stationed. An active community volunteer, he helped to coordinate the "Christmas in April" home-repair efforts for low-income, handicapped, or elderly homeowners through his church. He spent much of his personal time organizing Christmas parties, fundraisers, and regular visits to area orphanages while stationed at Osan Air Base in Korea. He volunteered with the Special Olympics and March of Dimes, and coached soccer, baseball and basketball through the youth center at Aberdeen Proving Ground.

While these accomplishments represent only a fraction of the time Buckingham has devoted to his country and his community, he also makes a significant impact on his alma mater. And although desiring to play more of a "hands-on, everyday" contribution, his unwavering annual support to the Michigan College of Optometry at Ferris State University sets an outstanding example for other alumni, and his passion and loyalty as a FSU alumnus are unmatched.

In recognition of two decades of dedicated service to our nation, his communities and FSU, the FSU Alumni Association proudly named Buckingham a Distinguished Alumnus of 2001.

TOBACCO USE CESSATION SATELLITE BROADCAST PLANNING

Disease and Injury Control staff are working with a program producer from the Food and Drug Administration Studios, Gaithersburg, MD. Lt. Col. Mark Lovell and Lt. Col. Christine Scott are executive producers for the Tobacco Use Cessation Satellite Broadcast, 19 September 2001, at 1300 ET. This live broadcast will give an overview of the Department of Defense/Veterans Administration (DOD/VA) Clinical Practice Guideline for Tobacco Use Cessation. Featured in the broadcast will be the guidelines for primary care providers, medical and dental, to ascertain, motivate, and support tobacco use cessation in Military Health Service beneficiaries. The broadcast will highlight successes at Army, Navy and

VA medical treatment facilities. This is the fourth in a series of satellite broadcasts that the Disease and Injury Control Program has produced for the USA Medical Command in support of our role in Population Health. (POC: Lt. Col. Mark A. Lovell, DSN 584-2464, 410-436-2464, or 1-800-222-9698)



THE EPIDEMIOLOGY OF ALCOHOL AND HEALTH

An alcoholic has been lightly defined as a man who drinks more than his own doctor. Alvan L. Barach, JAMA 1962

Raymond Pearl was truly a remarkable man, an accomplished statistician (he had been a student of Karl Pearson), a demographer, and an epidemiologist, who described himself as a biologist. He published a fascinating monograph on alcohol and longevity in 1923, The Action of Alcohol on Mortality, in which he compared survival among three groups of men and women, abstainers, moderate drinkers, and heavy drinkers. Today most of us would be more than a little amused at his definitions. He characterized moderate drinkers as those who had “an occasional glass of beer,” or “the labourer, who at not too frequent regular intervals had a drink of whisky or other spirits.” A heavy drinker was defined as “the person who made it a regular habit to take wine or beer with meals, even though the amount taken was

never excessive,” however the category also included “drunkards.”

I suspect Pearl was a bit surprised to find that age-specific death rates were higher among total abstainers than those who had one or two drinks a day. With three drinks a day mortality began to rise, and with five or more drinks a day it rose sharply.

There have been dozens of studies of alcohol and mortality since Pearl reported his findings, and with few exceptions they replicated his observation that mortality among light or moderate drinkers (variously defined) is lower than that among abstainers. Few of these, however, made any serious attempt to control for confounders.

Investigators at the Loyola University Stritch School of Medicine analyzed data from a huge sample, over 43,000 randomly selected American men and women, with regard to alcohol consumption and mortality (Liao Y et al. Alcohol intake and mortality: Findings from the National Health Surveys (1988 and 1990). *Am. J Epidemiol* 2000; 151: 651-659). On univariate analysis they, too, found that death rates were higher among abstainers than among moderate drinkers, the men who had no more than two drinks a day and women who had no more than one. The male moderate drinkers enjoyed a 45 percent reduction in mortality, and the female moderate drinkers had a 31 percent reduction in death rates.

The investigators noted something very interesting about the subsamples of men and women in their study. First, those men who drank one or two drinks a day were much better educated than the abstainers and the heavy drinkers, and they were also more likely to be married than those who had three or more drinks per day. Lifetime abstainers tended to be nonsmokers, and those who had an average of three drinks a day were much more likely to be cigarette smokers than those who had but one or two drinks per day. The proportion of men who smoked increased regularly in proportion to the amount they drank.

When the researchers control for marital status, educational attainment, and cigarette smoking, they found the risk reduction in men was attenuated to 25 percent, and this was no longer statistically significant. Among women the risk reduction was 21 percent after the final adjustment, and that was still significant. After reading the foregoing, I found myself wondering what would have happened if the investigators had also been able to control for systolic blood pressure, serum cholesterol levels, and physical exercise. Would the beneficial effect of alcohol for men have disappeared completely? It seems remarkable to me that this paper has not

attracted more attention in the literature and the lay press.

What about alcohol consumption among men who have heart disease? Does it confer a benefit, or does it increase the risk of death? Two recent studies cast some light on the subject.

Abramson and his colleagues examined the association between moderate alcohol use and the risk of heart failure in older people independent of the myocardial infarction (Abramson J L et al. Moderate alcohol consumption and risk of heart failure among older persons. *JAMA* 2001; 285: 1971-1977). They conducted a prospective cohort study of slightly more than 2,000 men and women aged 65 years and more, who were randomly selected from public and private housing for the elderly and general housing in New Haven, Conn.

Subjects were categorized into three groups based on the ounces of alcohol consumed the month prior to the initiation of the study: 0, 1 to 1.5 drinks per day, and 1.5 to 4 drinks per day. Those consuming more alcohol were excluded from analysis. Analyses controlled for age, sex, race, education, myocardial infarction, hypertension, diabetes, smoking status, and body mass index.

Those consuming no alcohol, 1 to 1.5 drinks per day, and 1.5 to 4 drinks per day had the following heart failure rates per 1,000 person-years of follow up: 16.1, 12.2, and 9.2 respectively. (The few consuming more than 4 drinks per day had a rate of 7.0 events per 1,000 years of follow-up.) After adjusting for covariates, the relative risk for heart failure were: 1.00 (referent), 0.79, and 0.55 for none drinkers, those consuming 1 to 1.5 drinks per day, and those consuming 1.5 to 4 drinks per day respectively.

The researchers looked at risk according to the type of alcohol used, and they found the relative risk for any use of beer was 0.77; for any use of wine, 0.77; and for any use of liquor, 0.74. They con-

cluded it was pure alcohol intake, and not the type of beverage used, that was associated with lower risk of heart failure. That the benefit of alcohol is unrelated to the type of beverage consumed is contrary to popular belief, although most epidemiologic studies support it.

A study of patients who had been hospitalized with acute myocardial infarctions (AMI) showed that survival was higher among those who had consumed alcohol moderately during the year prior to their illnesses (Mukamal K J et al. Prior alcohol consumption and mortality following acute myocardial infarction. JAMA 2001; 285: 1965-1970). Slightly more than 1,300 men and 600 women were interviewed after an AMI regarding alcohol consumption. Drinkers were classified as light, those who had fewer than 7 drinks a week, and moderate, those who had 7 or more drinks a week. A total of 107 drinkers reported having more than 21 drinks per week, and 8 of them died. This group was not analyzed separately. All-cause mortality was the primary outcome measure; cardiovascular mortality, the secondary.

Fully 47 percent of these patients were abstainers during the year prior to their infarctions while 36 percent were light drinkers and 17 percent were moderate drinkers. All-cause mortality was highest among abstainers, 22 percent, and lowest among those who consumed 7 or more drinks per week, 9 percent. Mortality was intermediate, 13 percent, among those who consumed fewer than 7 drinks per week.

Hazard ratios for all-cause mortality adjusted for a variety of medical factors such as medication, hypertension, congestive heart failure on admission, etc. as well as age, sex, smoking, income, and education were 0.82 for those drinking less than 7 drinks a day and 0.67 for those drinking more than 7 drinks a day. Abstainers were the referent group. Hazards ratios for all-cause mortality did not differ

significantly among those who consumed wine, beer, or liquor primarily.

What's the bottom line? Despite the possibility of confounding in the difference in mortality between abstainers and moderate drinkers, the evidence to date strongly suggests that moderate drinking is beneficial with regard to longevity. Moderate drinking is frequently described as no more than two drinks per day for men and one drink per day for women. However described, moderate alcohol consumption can, of course, progress to heavy drinking, and the latter increases the risk of other cardiovascular disorders including hypertension, arrhythmias, hemorrhagic stroke, and cardiomyopathy. Worse still perhaps, the risk of breast cancer may be increased in young women, who have little risk of coronary heart disease, who drink even moderately.

Surely, there is no sound reason for discouraging moderate drinkers to stop drinking, but I find the question of whether or not to encourage abstainers to drink considerably more difficult, particularly if there is a history of heavy drinking in close relatives. POC: Dr. Donald MacCorquodale, DSN 584-2714, 410-436-2714, or 1-800-222-9698.



THE TYRANNY OF CLINICAL RELEVANCY

*“To cure disease is glory.
To prevent disease is victory.”*

Major General Earl W. Mabry II (USAF) included this quote on one of his slides at a tri-service meeting of military audiologists a few years ago. Remembrance and reflection on these words are bittersweet. Over the last decade, green suits at these annual meetings have steadily dwindled to less than 40 percent of their original number while the other services have remained stable in their military audiology authorizations. Today Air Force military audiology strength exceeds the Army by 25 percent. There is no irony lost in the fact that Army audiologists are responsible for implementing the most cost effective hearing conservation program that reduced hearing loss and produced over \$1 billion in cost savings. The Army's Hearing Conservation Program cannot claim a total victory. Even during the program's heyday some soldiers were still losing hearing, but at least the trends were going in the right direction. Given the success, why did the Army reduce the number of audiologists in greater numbers than the other services?

Most Army staffing decision makers (hospital commanders and administrators) recognized the military audiologist's clinical role, but they are not supporting the hearing conservation programs. An effective spokesman, MG Patrick Sculley, tried to convince decision makers of the value added of effective hearing conservation programs but tri-care costs and clinical audiology requirements have undermined program support. Increased staffing support for the tri-care mission has reduced support for the Hearing Conservation Program. Prevention of disease and injury is relevant in the Defense Healthcare System since there are fewer patient visits, fewer specialty referrals, and less long-term disability costs.

Not surprisingly, referrals from the Hearing Conservation Program are not well received. They generally have a low clinical yield. High frequency, sensory-neural hearing loss is not very glamorous or, for now, treatable. (Look for COL Rick Kopke, a neurotologist, to one day revolutionize this area with anti-oxidant treatments.) In the hierarchy of patient care, you aren't truly clinically relevant unless you are involved in hands-on, direct patient care. Somewhere along the way, the value of reducing clinical workloads and compensation/disability and ensuring combat readiness was diminished. Granted, if your occupational health program does not have data supporting your effectiveness in these areas, maybe your relevancy should be questioned.

Military hearing conservation programs were the first in occupational health standardized Medical Expense Performance Reporting System (MEPRS) codes. It has been an ongoing fight to convince administrators to implement the codes for hearing conservation. Previously medical surveillance workload is credited to the clinical side of the house. Such workload documentation may have come too late. Many of our large forts do not have audiology coverage for hearing conservation. We have gone back 30 years when hearing conservation was just one of many programs which other fully committed, occupational health personnel had to juggle. At the large forts, hearing conservation programs are effectively managed when dedicated audiology resources can serve as a linchpin coordinating the input from industrial hygienists, safety professionals, and other occupational health assets. The greatest value added, however, from our military audiologists has

been their unique ability to use their academic backgrounds to personalize health education messages regarding use of hearing protection and make them relevant to soldiers, civilians, supervisors, and commanders alike.

Long-term hearing loss disability and compensable trends are favorable in the Army, but these data represent 20-35 year program windows. Shorter-term measures of program effectiveness, quality control, and program participation are telling another story. Program deterioration is more visible than the slow insidious nature of a noise-induced

hearing loss. Some of our seniors attempt to blame noise-induced hearing loss in the Army on loud rock and rap music. The fact is a soldier can lose more hearing in one training session on a firing range than from years of listening to loud music.

As an audiologist, I'd much rather be known for my ability to preserve a soldier's hearing than my ability to fit him with a hearing aid. The first job is the tough one. The second is what we do in defeat. POC: Dr. Doug Ohlin, DSN 584-3797, 410-436-3797, or 1-800-222-9698.

TRI-SERVICE VISION CONSERVATION AND READINESS PROGRAM

The Tri-Service Vision Conservation and Readiness Program (TVCRP) serves as the DOD leader for sight conservation. Composed of Army, Navy, Air Force, and civilian optometrists, the TVCRP works to improve the vision readiness, enhance the visual efficiency, and advance the eye safety of DOD personnel. It serves as the action office for the tri-service Optometry Consultants to The Surgeons General. The TVCRP is involved in five main areas: revising and developing policy, doctrine and standards; conducting studies, research and surveillance; providing education and training; developing vision information services; and assisting local vision conservation and readiness programs.

Some of the most recent initiatives have been in the areas of education and training, and research and surveillance. Several members of the TVCRP analyzed eye injury data over an 11-year period and

developed profiles of the soldiers, sailors, airmen, and marines most at risk for a major eye injury. In addition, the analysis identified the military occupational specialties sustaining the most eye injuries, as well as those having the highest incidence and cost. Recommendations from these findings included increasing education and training targeted to those individuals most at risk. The TVCRP already has a 40-hour vision conservation and readiness course taught 2-3 times a year for all DOD personnel involved with an installation sight or vision conservation program. To take the education out to local trainers, the TVCRP developed an exportable CD-ROM version of this course. Student study guides for each hour of instruction were developed in conjunction with the PowerPoint slides and Word outline handouts. In addition, DOD references and regulations pertaining to vision conservation activi-

ties were included to this comprehensive training guide. The materials are hyperlinked together, making it easy for readers to navigate through this training guide.

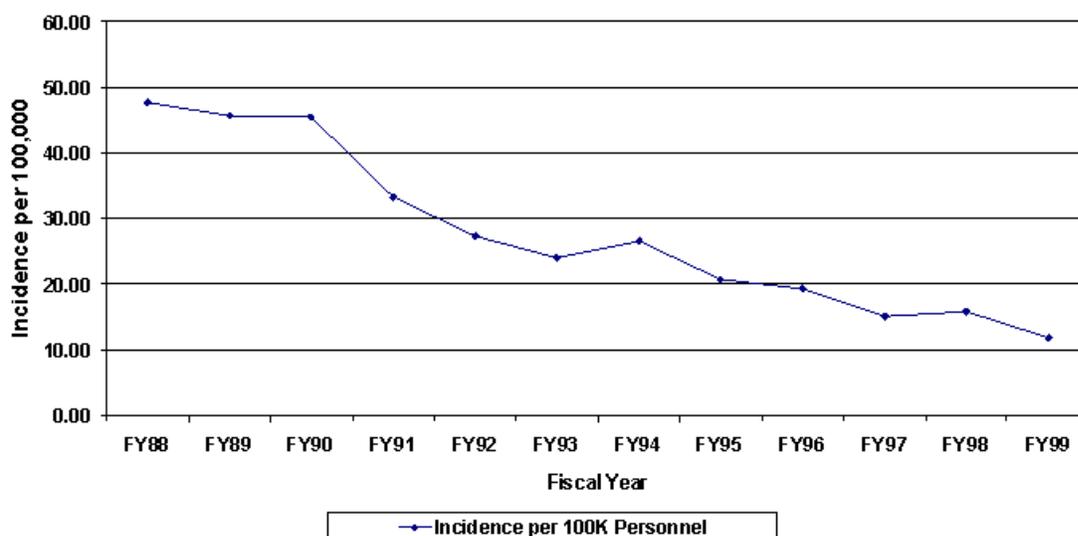
The TVCRP supports the development of force health protection systems. Members of the TVCRP staff serve as the DOD subject matter experts regarding optical and eye protection issues concerning the development of the Military Eye Protection System, the Joint Services General Protective Mask, and the Joint Services Aircrew Protective Mask. They are involved in the development of vision information services also by serving as the program manager of the Defense Vision Information Services. This program provides guidance to DOD Health Affairs on incorporation of vision services into the

Composite Health Care System (CHCS) II. At the local level, the TVCRP provides consultation to installations around the world via phone, e-mail, and web sites. The TVCRP manages the DOD Vision Conservation web site and the Army, Navy, and Air Force Optometry web sites.

With all the services working together under one roof on these various vision issues, their initiatives benefit from economies of scale. In addition, the TVCRP gives the DOD a unified voice on vision conservation and readiness. The TVCRP exemplifies force health protection by conserving the vision of soldiers, sailors, airmen, marines and civil service personnel (see graphs). In this manner, TVCRP is a true Tri-Service success story.

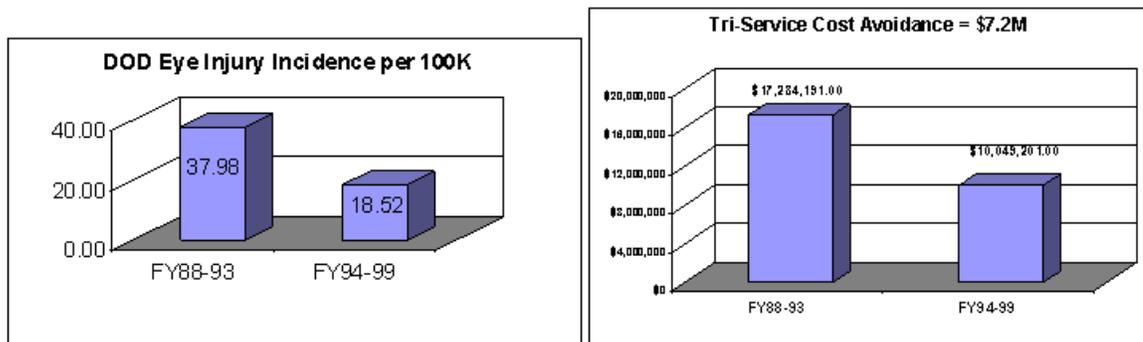
Tri-Service Vision Conservation and Readiness Program

DOD Major Eye Injuries FY88-99



Source: Army, Navy, and Air Force Safety Centers

Tri-Service Vision Conservation and Readiness Program



A Tri-Service Success Story!

Source: Army, Navy, and Air Force Safety Centers



LCDR Ken Whitwell, Director of Training and Education, is instructing occupational health nurses and safety officers on the proper method of inverting the upper eyelid.



LCDR Ken Whitwell, Director of Training and Education, is instructing occupational health nurses and safety officers on performing the cover test to test ocular alignment.



Lt. Col. Alan Blatterman, Program Manager, Tri-Service Vision Conservation and Readiness Program, instructs a safety officer on the proper use the Timmus screener.

NOISE POLLUTION – A PUBLIC CONCERN

Noise pollution continues to grow as a concern among public citizens and the DOD. Thus, an International Military Noise Conference, sponsored by the Deputy Under Secretary of Defense (Environmental Security) in cooperation with USACHPPM, was held in Baltimore, Maryland, 24 – 26 April 2001. The conference included military personnel and environmental officials as well as industry and citizen stakeholders with a vested interest in two effects of military noise, i.e. environmental and occupational health effects. Over 200 experts in environmental noise and noise-induced hearing loss from 12 countries, including approximately 40 members of the North Atlantic Treaty Organization (NATO) attended. The nations in attendance included Brazil, Belgium, Canada, Finland, France, Germany, the Netherlands, Norway, Sweden, Switzerland, the United Kingdom, and the United States. As part of a follow-up to a study on aircraft noise, the NATO Committee on Challenges of Modern Society established a working group to consider “Noise from Weapons and Sonic Booms and the Impact on Humans, Wildlife, Domestic Animals, and Structures”.

Mr. Kurt Yankaskas, Acting Assistant Secretary of Defense (Environmental Cleanup), welcomed the attendees and discussed the three disciplines of Battlefield Acoustics, Environmental Noise, and Hearing Conservation. He stressed the importance of recognizing interconnectivity with these three disciplines by international teamwork.

LTG James P. Peake, The Surgeon General of the Army/Commander, U.S. Army Medical Command, was the keynote speaker. He discussed various aspects of noise, hearing loss, and how noise impacts on the soldier’s well being. It was stated that hearing loss can cost the Army hundreds of millions of dollars in MOS retraining, but there’s another very important noise issue. With civilian communities moving ever closer to military bases, the noise is affecting our neighbors. He referred to the Army Chief of Staff, GEN Eric Shinseki’s Transformation – insisting on relevance for the 21st Century and that people are the most important aspect of that Transformation. We must be responsive, deployable, versatile, lethal, survivable, and sustainable at all times.

Mr. Ray Clark, Former Principle Deputy Assistant Secretary of the Army, Installations and Environment, was the second keynote speaker. He spoke of military readiness vs. environment and public concerns, a topic that is gaining attention as a real obstacle for military operators. Over the past year, high-level Pentagon and military officials have begun to probe the issue in search of solutions, and congressional committees have also begun investigating. One of the conflicts that communities have raised is over noise produced by training, an area that has not gotten as much attention as other readiness vs. environment/community issues such as endangered species. Mr. Clark pointed out that 43 percent of our major Army installations have changed operations due to noise, in which case the activity was either re-scheduled or halted.

This was the first time that military noise specialists joined together to share their interests in the effects of two types of military noise: environmental and occupational noise. It provided a forum for the exchange of information on military noise; the associated effects on humans and wildlife; and current, future and emerging technologies

Dr. William A. Russell, conference director, USACHPPM, said, "We, the military, make noise like no one else... from artillery to supersonic aircraft. Obviously, hearing is an important issue for someone on the battlefield. Soldiers who don't wear or don't have adequate hearing protection lose more than just their hearing. If you can't hear, you don't know the enemy is there."

He continued, "Additionally, our installations have had to alter training primarily because of noise issues and community complaints. This has an often subtle, but dramatic, impact on readiness training. If we continue to alter our installation's training capability then it impacts our soldiers, sailors, airmen and marines capability to defend our nation."

Mr. Geoff Kerry, technical manager in the School of Acoustics and Electronic Engineering,

University of Salford, UK, said, "The main environmental noise problems in the UK originate from civilian traffic and aircraft noise. Neighbor noise, arising from the playing of loud TVs and stereos, also features high on the list. Military noise is not usually a major problem, and when it is, it is confined to specific areas. However, military low flying, helicopters and artillery training noise do generate some complaints. In the current economic climate, no one country can be expected to carry the cost of research into these noise-related problems and combining efforts can not only share the burden but can result in quicker solutions. Under the NATO banner, experts from individual countries work closely together (networking) to exchange information, data, and ideas."

At the end of the conference, the experts identified common issues and agreed to work together to share information of common value to all of DOD and other nations' defense ministries. (POC: Dr. William Russell, DSN 584-3829, 410-436-3829, or 1-800-222-9698)

DEPARTMENT OF DEFENSE SERUM REPOSITORY - A NATIONAL TREASURE

The DOD Serum Repository, the world's largest serum repository, was dedicated at a ceremony held on March 13th at its new secure facility in Silver Spring, Maryland. The Repository is maintained by the Army Medical Surveillance Activity (AMSA), USACHPPM. Brig. Gen. Lester Martinez-Lopez, Commander, opened the ceremony and introduced Maj. Gen. Patrick Sculley, Deputy Surgeon General of the Army, who was the keynote speaker. LTC Mark Rubertone, Program Manager, Medical Surveillance, is in charge of the Serum Repository and was responsible for the tours given to the following visiting dignitaries: Maj Gen Harold L. Timboe, Commander, North Atlantic Regional Medical Command, Walter Reed Army Medical Center; RADM Richard A. Mayo, Deputy Director, Logistics, J-4 Medical Readiness, Joint Chiefs of Staff; Maj Gen Robert G. Claypool, Director, Military and Veterans Health Coordinating Board; and Brig Gen Gary Murray, Commander, U.S. Air Force Medical Operations Agency, Bolling Air Force Base, Assistant Surgeon General for Dental Services.

Sculley, former commander of CHPPM who fully supported this endeavor, said, "The most important aspect of this new facility is the magnitude of the work that can be done here. This is the world's largest repository of its kind, with nearly 27 million serum specimens from 6.8 million service members. These specimens are linked with demographics, military assignment history, and medical history. They provide the ability to conduct important seroepidemiological studies that will advance the health of service members and science. I believe the best example of this capability is found in the recent study of the prevalence of Hepatitis C in active duty service members. It has been

variously reported that veterans reflect a 10 – 20 percent prevalence of Hepatitis C. The prevalence in the U.S. population under age 40 is 2.6 percent. It has been theorized that there are some unique aspects of military service that result in higher prevalence of Hepatitis C. Using specimens from the serum repository we have been able to conclusively refute that notion. In a classic seroepidemiological study, researchers used specimens from the repository to show that the prevalence of Hepatitis C in active duty service members was .48 percent, actually a prevalence lower than that of the U.S. population. This type of information is absolutely critical to military decision-makers and civilian policy-makers. The beauty of having a repository like this is that a study can be conceived, brought to fruition, and research published in terms of months, not years. I predict that, in the years to come, medical surveillance, supported by this serum repository and the great scientists, physicians, and health care professionals who work here, will be perceived as one of the greatest advances in military medicine."

The DOD Serum Repository was established in 1989 as the Army/Navy Serum Repository to store serum that remained following mandatory HIV testing within the active and reserve components of the Army and Navy. Since that time its mission has expanded to include the collection and storage of operational deployment specimens, as well as the addition of Air Force specimens. It currently houses in excess of 26 million specimens in large walk-in freezers, and continues to grow by approximately 2 million specimens per year. The new facility has a storage capacity of over 40 million specimens.

Its mission is to receive and store remaining serum specimens from HIV testing programs within the DOD, and to receive and store serum specimens related to operational deployments worldwide. The mission of AMSA includes retaining relevant personnel and other information on individuals serving within the military to include information on serum specimens in the repository. The availability of serial serologic specimens that can be linked to relevant demographic, occupational, and medical information within the databases at AMSA establishes a unique and powerful resource for the conduct of military medical surveillance, clinical care, and seroepidemiologic investigations.

Specimens contained in the repository are available to researchers/investigators within the DOD for the purposes of conducting militarily relevant investigations. Access to the specimens is regulated by AMSA as specified in the document, "Guidelines for Use of Specimens Stored in the DOD Serum Repository" available on-line at AMSA's web page <http://amsa.army.mil>. All questions regarding use of the serum repository should be addressed to the staff of AMSA.



LTC Mark Rubertone briefs: (l to r) RADM Richard A. Mayo, Maj Gen Harold L. Timboe, Maj Gen Patrick Sculley, Mr. Stephen Kistner, Brig General Gary Murray, MAJ Brian Balough, and Brig Gen Lester Martinez-Lopez

SELF-CARE

One of the best Health Promotion and Prevention Initiatives in the Army is the “Troop Medical Clinic Self-Care Intervention Program” at Fort Leonard Wood, MO. The Self-Care Program reduces the demand for non-emergent, self-treatable health problems in the Troop Medical Clinic, reduces time lost during basic training to seek health care, promotes and develops health care consumer skills in new military recruits, and advances the philosophy that personal health care is a joint responsibility of the basic trainee and the military health care system.

The following are statistics for the time period from January 1998 – May 2000:

Total Provider Visits Avoided:	17,839
Total Provider Time Saved:	5,946 hours
Total Training Time Saved:	33,894 hours
Total Adverse Outcomes:	0
Total Cost Avoidance (not including training time):	\$910,665.

The Fort Leonard Wood Self-Care Program was recognized with an award at the Third Annual Force Health Protection Conference in Baltimore, MD. We are in the process of working with other installations to replicate this program and validate its effectiveness. (POC: Maj. Mark J. Piotrowski, DSN 584-7390, 410-436-7390, or 1-800-222-9698)

HOW TO PROTECT YOUR SMILE

As an Army dentist, I’ve been “on call” and beeped too many times during after-duty hours to go to the emergency room to treat oro-facial (tooth-related) trauma resulting from a sporting injury that *was preventable*.

Some of these injuries would be quite severe, resulting in long-term dental complications even with the delivery of optimal care. The simple fact is that no matter how advanced the technology may be, replacing a tooth or tooth structure is never as good as the original tissue.

The Army values physically fit men and women who often engage in competitive athletics. This can place our troops at risk if proper protection is not

worn. Sports-related facial injuries may occur during team play, contact sports, or fast moving sports. Given that many soldiers engage in multiple sports over the course of a year, their odds for oro-facial injury may exceed the 10 percent chance that a civilian athlete faces for a single sport over a single playing season.¹

The occurrence of oro-facial trauma is not limited to sports. Injuries can and do occur during military training events, such as pugil stick combat, weapons firing, rappelling, running through obstacle courses, and orienteering through a land-navigation course. The type, quantity, severity, and impact of these injuries are unknown, but anecdotal evidence

from Army Dental Care System (ADCS) providers indicates a problem exists. The fiscal burden these injuries impose on the ADCS and the Military Health System is also unknown, but expensive relative to the cost of a mouthguard. The average cost of treating a knocked-out tooth is about \$1,000—far more expensive than the cost of a mouthguard.

There are many civilian studies which document that oro-facial injury rates vary widely among sports and within a given sport, perhaps reflecting differences in the aggressiveness of the athletes, the age of the study subjects (children versus young adults or adolescents), the level of physical contact involved, and the use of face and mouth protective devices. The latter is a particularly important factor, as studies have documented that mouthguards can have a substantial impact on reducing sports-related oro-facial trauma.²

Despite the demonstrated success of mouthguards in reducing oro-facial injuries, only five sports played at the amateur level require a mouthguard: boxing, football, ice hockey, lacrosse, and women's field hockey. In 1913, boxing was the first sport to introduce mouth protection. Mouthguards worn by boxers have eliminated or reduced the incidence of tooth avulsions, fractures, intraoral lacerations, and contusions. It is also reported in the literature that mouthguards protect the jaw against fractures by absorbing energy from traumatic blows to the chin.

The Academy of Sports Dentistry advocates increasing the delivery and wearing of mouthguards where the risk of oro-facial injury is high, and has published a list of 40 sports that should require a mouthguard.

However, not all athletes are aware when a mouthguard should be worn, or which sports have mandatory mouthguard rules. Because of the

limited mandated use of mouthguards in amateur sports, oro-facial injury rates are higher than in less aggressive non-contact sports, such as football.

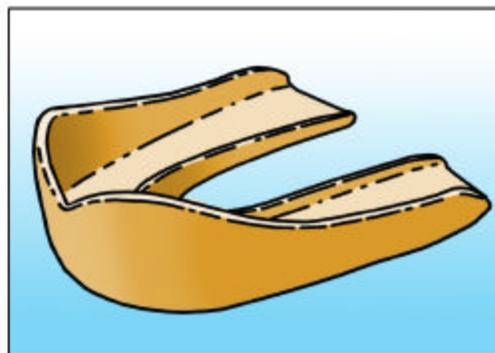
A chief cause of oro-facial injuries in non-contact sports is projectiles, such as baseballs and tennis balls, or equipment. Baseballs and tennis balls can travel as fast as 100 miles per hour.³ Thus, a direct hit in the face with a sports projectile could inflict substantial oro-facial injury. The American Dental Association recommends that mouthguards be used for all sports “where the risk of injury is significant.”³ So, the next time you play a sport, you may want to consider if a mouthguard should be worn.

¹ Camp J: “Diagnosis and Management of Sports-related Injuries to Teeth. *Dent Clin North Am* 35:733-55, 1991.

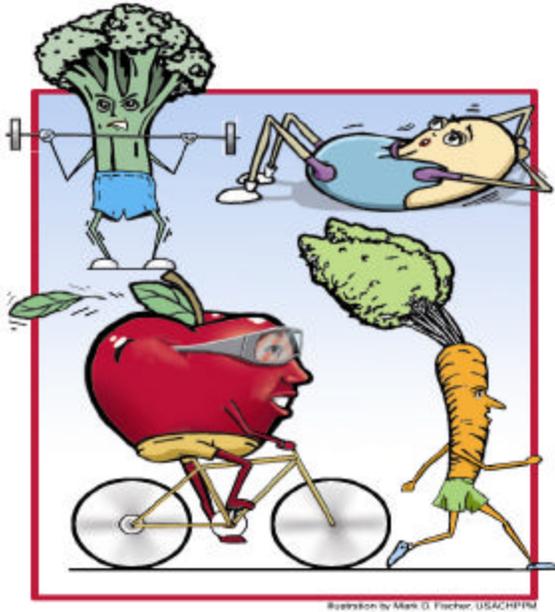
² Pinkham JR, Kohn D: “Epidemiology and Prediction of Sports-related Traumatic Injuries”. *Dent Clin North Am* 35:609-26, 1991.

³ American Dental Association. “Resolution 80H. In *ADA Transactions 1995*”. Chicago: American Dental Association; 1995:613.

POC: MAJ Mark Piotrowski, DSN 584-7390, 410-436-7390, or 1-800-222-9698.



HEALTHY LIVING: THE 5-A-DAY WAY



The Dietary Guidelines for Americans suggest that we eat a variety of fruits and vegetables to promote a healthy life style. The recommendations are to eat at least two servings of fruits and three servings of vegetables each day.

Why Eat Plenty of Different Fruits and Vegetables?

Besides tasting good, fruits and vegetables contribute to better health because they are low in calories and fat, filling, and high in fiber, vitamins and minerals. Fruits and vegetables are rich in nutrients because they provide the best sources of Vitamin A (carotenoids), Vitamin C, folate, and potassium. (See Table below for sources of these nutrients.) Fiber is found only in plant foods: fruits and vegetables, dry beans and peas; and whole grain bread

and cereals. They are quick to prepare and easy to eat. Choose whole or cut-up fruits and vegetables rather than juices, which have minimal amounts of fiber. Eating a variety of plant foods containing fiber is important for proper bowel function—it helps to reduce the symptoms of chronic constipation that are associated with diverticular disease and hemorrhoids. It also may lower the risk of heart disease and some cancers.

Most people can get enough vitamins and minerals by eating a reasonable daily diet that includes plenty of whole grains, fresh fruits, and vegetables. Vitamins and minerals are necessary for life and good health. They assist the enzymes and hormones that the body needs to grow, repair, produce energy, remove wastes, and defend against infection. In addition, they keep bones strong, eyes sharp, brain alert, and protect against cancer and heart disease. Fruits and vegetables also contain disease-fighting phytochemicals that enhance health and may even prolong life.

Programs that Promote Fruits and Vegetables

The 5-A-Day for Better Health Program is a nationwide nutrition campaign to encourage Americans to eat five or more servings of fruits and vegetables each day for better health. The program is sponsored by the National Cancer Institute (NCI) and the Produce for Better Health Foundation (PBHF), a nonprofit organization representing the fruit and vegetable industry. Both programs, along with the Dietary Guidelines for Americans, send the same message of promoting healthy diets and healthy lifestyles for Americans.

Every year, the NCI and the PBHF coordinate 5-A-Day activities in every state in the United States, the four United States territories, military service branches, and the Indian Health Services. Since the 5-A-Day Program was formed, it has focused on prevention and changing lifestyles for better health. The message has stimulated thousands of Americans to make positive changes in their daily lifestyle, leading to improvements in the way they eat. Today, the demand for fruits and vegetables has increased, and Americans are encouraging and motivating each other to eat at least five servings of fruits and vegetables a day for better health.

Advice For Today

Follow the Dietary Guidelines for Americans and strive to eat at least two servings of fruits and at least three servings of vegetables each day. Create change in your community through your families, schools, health professionals, and commercial facilities by demanding more fruits and vegetables at school, at work, in restaurants, and in vending machines. Encourage and motivate your friends and neighbors to do the same. Your challenge is to live healthy, the 5-A-Day way!

TABLE

SOURCES OF VITAMINS A AND C, FOLATE, AND POTASSIUM

SOURCES OF VITAMIN A (CAROTENOIDS)

Orange vegetables like carrots, sweet potatoes, pumpkin
Dark-green leafy vegetables such as spinach, collards, turnip greens
Orange fruits like mango, cantaloupe, apricots
Tomatoes

SOURCES OF VITAMIN C

Citrus fruits and juices, kiwi fruit, strawberries, cantaloupe
Broccoli, peppers, tomatoes, cabbage, potatoes
Leafy greens such as romaine lettuce, turnip greens, spinach

SOURCES OF FOLATE

Cooked dry beans and peas, peanuts
Oranges, orange juice
Dark-green leafy vegetables like spinach and mustard greens, Romaine lettuce
Green peas

SOURCES OF POTASSIUM

Baked white or sweet potato, cooked greens (such as spinach), winter (orange) squash
Bananas, plantains, dried fruits such as apricots and prunes, orange juice
Cooked dry beans (such as baked beans) and lentils

POC: SFC Jennifer Brown, DSN 584-7406, 410-436-7406, or 1-800-222-9698.

EPHEDRA: WORTH THE RISK?



“Turn your body into a fat-burning machine!”
“Lose weight without exercise!” Do these claims sound too good to be true? Well, they are!

Many dietary supplements that claim to increase your metabolism and promote weight loss contain the dangerous herb ephedra, also known as ma huang. These supplements are sold in supermarkets, commissaries, health food stores, fitness magazines, and on dietary supplement websites.

Ephedra is an herb that excites the central nervous and cardiovascular systems. Its effect on your body is similar to amphetamines. Ephedra excites your heart and constricts your blood vessels, which causes your heart rate and blood pressure to increase. This is especially dangerous during exercise. When your blood vessels are constricted during exercise, your heart and lungs have to work harder to circulate enough oxygen to meet your

body’s need. Ephedra makes you feel like you have more energy, but internally it dehydrates you and overworks your kidneys. Other side effects of ephedra may include the inability to urinate, abnormal heart rhythms, cardiac arrest, dizziness, seizures, insomnia, nausea and vomiting, and even death. Recently, two Fort Jackson soldiers died after taking ephedra.

Dietary supplements, including ephedra, are not as stringently regulated by the Food and Drug Administration (FDA) as are prescription and over-the-counter drugs. Under the Dietary Supplement Health and Education Act of 1994 (DSHEA), manufacturers do not have to get FDA approval before producing or selling dietary supplements. The dietary supplement manufacturer is supposed to be responsible for ensuring that a dietary supplement is safe before it is marketed. The FDA only takes action against potentially harmful dietary supplements **if they are proven to be unsafe after they are on the market.** On March 21, 2001, Congress and the FDA conducted the second hearings to determine if such actions are warranted. To date, the FDA has received more than 800 reports of adverse reactions and more than 35 reports of death due to ephedra-containing supplements. In fact, many states already ban the sale of ephedra to anyone under 18 years of age. Going one step further, the State of Florida and the National Collegiate Athletic Association ban its use for people of all ages.

While most dietary supplement product labels do list ingredients, many do not provide the quantity of each active ingredient per dose or pill. Additionally, at this point in time, there are no guidelines in place that require all manufacturers to adhere to strict manufacturing standards, known in the industry as Good Manufacturing Practices (GMP); including

supplement potency, cleanliness, and stability. Therefore, in some supplement products, the amount of ephedra that is actually in the pills or powders can vary from jar to jar and even from pill to pill. One pill may have almost no ephedra and the next pill may have five times the amount on the label. And, in some cases, ephedra that is in a product may not be listed on the label at all!

Many ephedra-based supplements also contain caffeine. Caffeine magnifies the effects of ephedra, making your heartbeat faster than either caffeine or ephedra alone. Read the ingredient label. Look for guarana, guarana concentrate extract, kola, and kola nut. These forms of caffeine contain three to five times more caffeine than coffee! Foods containing caffeine and theophylline, such as coffee, tea, cola, and chocolate, also increase the effects of ephedra.

The labels for most ephedra-based supplements contain warnings against taking ephedra if you are pregnant, breastfeeding, under the age of 18, taking monoamine oxidase (MAO) inhibitors, antidepressants, any product containing ephedrine or pseudoephedrine, or medication for high blood pressure. Some labels fail to warn you about other potential dangers for people with heart conditions, glaucoma, thyroid disease, diabetes, psychiatric disorders, neurological disorders, renal disease, difficult urination, or prostate enlargement.

Many soldiers currently are taking ephedra-based performance enhancing or weight loss supplements. Most of them, one must assume, are not suffering any obvious side effects. So...if your buddy takes such products, does that mean it is safe for you? Not necessarily! Weighed against its unpredictable potency and purity, the mistaken common assumption that herbals are “natural” (and therefore safe), the lack of consumer knowledge regarding individual risks, and the potential for potent interactions with other drugs, we must acknowledge that ephedra can be a dangerous herb.

The initial direction of the recent Congressional/FDA hearings regarding ephedra seems to advocate for establishing “safe” dosages, along with improving education for the consumer. Until this happens, the wisest personal choice may well be to avoid ephedra altogether.

We gratefully acknowledge the contributions of CPT Tracy R. Hunter, R.D. Her article on Ephedra in *The Leader*, Fort Jackson, SC, August 18, 2000, provided some of the key focus areas for this article.

For additional information and resources on dietary supplements, visit the USACHPPM website at: <http://chppm-www.apgea.army.mil> POC: COL Catherine W. Bonnefil/LTC Joan M.G. Lyon, DSN 584-2303, 410-436-2303, or 1-800-222-9698.

BLINK! A GUIDE TO COMPUTER EYESTRAIN



The digital age has increased worker productivity and harnessed the power of networks and the Internet to make communication more efficient. However, 75 percent of the people who use a computer three or more hours a day will suffer from computer-related eyestrain, according to the National Institute of Occupational Safety and Health (NIOSH).

Symptoms of computer eyestrain

Some of the symptoms of computer eyestrain, also referred to as computer vision syndrome (CVS), include:

- Headaches and neck or shoulder pain
- Blurred or double vision
- Changes in color perception
- Eyestrain, eye fatigue, or eye irritation

Causes of computer eyestrain

The elements of computer use that make this activity so visually demanding, as defined by the American Optometric Association, are frequent eye movements, continuous eye focusing, and alignment demands. These three processes are repetitive muscular activities caused by the nature of the computer video display terminal (VDT). The human eye is designed to focus in on sharp edges. However, the pixels (points of light) that form the letters on the VDT are actually brighter at the center and dimmer at the edges. When the eye cannot focus properly on a sharply defined edge, the eye attempts to focus elsewhere in search of that sharp edge. The continual focusing and refocusing of the eyes causes CVS, which could be considered a form of repetitive stress fatigue. This eyestrain or fatigue will be alleviated with rest.

Preventing computer eyestrain

The following tips can minimize the effects of CVS at home and at work:

- Make each computer workstation “eye-friendly.” Keep the VDT 18 to 30 inches away from the user. The VDT should also be 4 to 9 inches below eye level. Use an adjustable, ergonomically sound workstation. Clean the VDT screen frequently for dust and fingerprints.
- Minimize glare. Place the VDT perpendicular to windows and adjust drapes or blinds as necessary to eliminate glare and harsh reflections. Incandescent lighting is better than fluorescent.

- Take frequent breaks. NIOSH has reported that short, strategically spaced rest breaks can reduce eyestrain for VDT users without decreasing productivity. Look away from the VDT every 15 to 20 minutes. Focus on something far away. Repeat this eye relaxation three times; with eyes closed, rotate eyes to look up, then down, then left, then right. Short, frequent breaks of one to two minutes per hour are better than longer, less frequent breaks.

- Get regular eye exams. All VDT users should get regular eye exams. Be sure to inform the eye care provider about work environment factors such as long periods of VDT use.

- Blink! Decreased frequency of blinking causes eyes to dry out and feel sore. Normally, people blink an average of 22 times per minute; computer users blink an average of seven times per minute.

Increased use of computers at work and at home is inevitable. However, every computer user can take steps to avoid computer eyestrain without sacrificing productivity or efficiency. So, don't forget to blink!

For more information on computer eyestrain, visit the following web sites:

<http://www.cdc.gov/niosh/restbrks.html>

<http://www.aoanet.org/ia-musculo.html>

POC: Ms. Carlla Jones, DSN 584-1329, 410-436-1329, or 1-800-222-9698.

GUIDELINES FOR TREATMENT OF LATENT TB INFECTION

Tuberculosis (TB) has been a leading killer of humans for centuries. During the 19th century, TB claimed more lives than any other disease in the United States. In 1993, the World Health Organization (WHO) declared TB a global emergency due to the two million deaths it causes worldwide annually. In 1998, there were 18,361 cases of TB in the United States.

TB is a bacterial disease caused by a unique organism, the slow growing obligate aerobe, *Mycobacterium tuberculosis*. One-third of the earth's population is estimated to be infected with this organism though only about 10 percent of those infected will actually develop the disease of TB. It is from the asymptomatic pool of infected individuals

that disease develops causing its lingering morbidity and excruciating fatality. Though asymptotically infected individuals cannot spread the disease themselves, they provide the reservoir from which infection develops and spreads via the respiratory route to others. Those individuals infected but showing no sign of the disease are described as having a latent tuberculosis infection (LTBI).

In June 2000, the Centers for Disease Control and Prevention (CDC) and the American Thoracic Society published a synopsis of current thought and suggested treatments for LTBI based on a review of the best research and knowledge available at this time. Knowledge of this article, "Targeted Tubercu-

lin Testing and Treatment of Latent Tuberculosis Infection”, is an absolute must for clinicians and educators involved with the treatment of LTBI. Some of the major statements made in the article are summarized below.

Testing for LTBI should be targeted only to high-risk groups. Mandated testing of teachers, food handlers, etc. should be discouraged unless there is a high incidence of TB in the group. The Mantoux test is the only recognized test for TB infection at this time. The old tine test once used should be completely retired. A palpable hardness at the injection site, called induration, of 15 mm is considered positive for persons at low risk for TB. An induration of 10 mm is considered positive among those with an “increased” risk of developing TB. Some of the groups in this category would be immigrants arriving from high TB prevalence countries in the last 5 years, injection drug users, and people with certain clinical conditions such as silicosis, diabetes, renal failure, leukemia, and gastrectomy. Those at highest risk for developing TB, i.e. individuals who are HIV positive, on immunosuppressive therapy, had close contact with infectious TB, or with abnormal chest x-rays consistent with prior TB, should be considered positive with an induration of only 5 mm. Even people who have had Bacille-Calmette-Guérin vaccine, if they are at increased risk for TB, should be considered positive in accordance with these criteria.

When it comes to treating individuals with LTBI, the regimen given the highest recommendation is 9 months of treatment with Isoniazid (INH) at its appropriate dosage. It appears the maximal medicinal effect is achieved after 9 months and little more gained with a full year of treatment. A 6-month regimen of INH is still considered an option if local conditions indicate that 6 months of therapy is a more cost effective option and ensures that a greater number of LTBI individuals are treated. However,

the 6-month regimen should not be used for children, HIV infected people, or individuals who have shown radiographic evidence of prior TB infection.

Of course, there are variations within these regimens, such as the dose-adjusted, twice weekly administration of INH, which is considered an inferior substitute for the once daily regimen. If given twice weekly, directly observed therapy should be implemented. Properly dosed regimens of rifampin and pyrazinamide may also be given daily for 2 months. This regimen received high recommendations for individuals infected with HIV and would be an alternative for patients who have been exposed to INH resistant TB. Therapy should be terminated not on duration of treatment but upon completion of the total number of doses needed, e.g. 270 doses of INH completes a 9-month regimen.

These highlights are not meant to be a complete summary of the excellent recommendations and discussions put out by the American Thoracic Society and the CDC. The detailed discussion and review of the science underlying each of the recommendations is invaluable to clinicians and educators involved in the treatment of LTBI. Tuberculosis has been a challenge to the medical community for centuries and only with well-disseminated, rational policies consistently implemented will this scourge be eradicated. POC: LTC Michael Custer, Dr.P.H., DSN 584-6250, 410-436-6250, or 1-800-222-9698.



MIGRAINES TAKE A TOLL IN THE WORKPLACE

Nearly 18 percent of women and 6 percent of men develop migraines each year. The inability to focus in the office can bring on periods of decreased productivity, difficulty concentrating, avoidance of new projects, missed promotions, missed workdays, and even loss of employment. According to Jerry Swanson, M.D., a neurologist at Mayo Clinic, "Being able to quickly and effectively treat a migraine episode isn't always easy when someone is at work. Workplace productivity is ultimately affected when the person has an attack." In *The Burden of Migraine in the United States: Disability and Economic Costs*, the estimated economic burden for employers and individuals with migraines that require 112 million bedridden days, is \$13 billion a year from missed workdays and impaired work function. (*Arch Intern Med.* 1999;159:813-818)

Migraine headaches account for about six percent of headaches that have no apparent underlying disease. A migraine usually begins in the early morning or during the day with intense, gripping pain on one or both sides of the head. The migraine reaches the height of severity in minutes to an hour and lasts for hours to days, unless it is treated. The frequency of attacks can range from daily to once in several months. These attacks can be associated with nausea, vomiting, and extreme sensitivity to light and sound, forcing a person to be incapacitated for hours or even days.

About 10 percent of people who suffer from migraine headaches experience a warning symptom called an aura. The aura is a visual disturbance, such as sparkling flashes of light, dazzling zigzag lines, or slowly spreading blind spots. Other auras include dizziness and weakness or tingling on one side of the face, arm, or leg. Many people can have subtle indications of an oncoming migraine that start several hours or even a day before the headache. These signals include feeling elated, full of energy, thirsty, hungry for sweets, drowsy, irritable, or depressed. If

one or both of the sufferer's parents have or had migraines or if the sufferer is young and female, then he/she is more likely to suffer from migraines. In addition, three times more women are diagnosed with migraines than men.

Some researchers think migraines may be caused by changes in the trigeminal nerve system and by imbalances in the brain chemical serotonin. During a headache, serotonin levels drop causing the trigeminal nerve to release substances that cause blood vessels to become dilated and inflamed, resulting in severe headache pain. Brain scans have shown that the volume of blood reaching the brain drops during migraine attacks. Some experts speculate that migraines occur when blood drains from the blood vessels in the center of the brain to the outer blood vessels.

Whatever the exact mechanism of migraines, they don't occur without a trigger. Triggers range in nature from physiological to environmental. Common triggers include stress and fatigue; changes in weather, season, altitude level or time zone; changes in sleep patterns; sensory stimuli such as, bright lights, noise, and unusual odors; certain medications; low blood sugar from changes in mealtimes or skipped meals; intense physical exertion; tobacco, including secondhand smoke; certain foods and beverages to include beer and red wine, chocolate, fermented, pickled or marinated foods, monosodium glutamate, aspartame, caffeine, aged cheeses that contain high levels of tyramine (i.e. blue, cheddar, Muenster, Parmesan, and Brie); and fluctuations in estrogen levels.

Migraine pain management has improved dramatically in the last decade. Though there is still no cure for migraines, medications can help reduce the frequency of these headaches and stop the pain once it has started. Abortive drugs stop or decrease pain after a migraine starts. Better results may be

obtained if you rest or sleep in a dark room after taking these medications. Over-the-counter and prescription analgesics such as acetaminophen and ibuprofen, aspirin, or other non-steroidal anti-inflammatory drugs may ease mild to moderate migraines. If taken too often or for too long, these drugs can lead to ulcers and gastrointestinal bleeding. If you take over-the-counter or prescription headache medications more than three times a week, you may be setting yourself up for rebound headaches. While these medications give temporary relief, your body gets used to them over time, resulting in harsher or more frequent headaches. Prophylactic drugs help reduce the frequency and severity of migraines and may increase the effectiveness of abortive medicines during migraine attacks. These medications are used only after other measures have been tried or if your headaches are disabling or occur more than three times a month.

Headaches can be both incapacitating and unpredictable, interfering with your job, your relationships and your overall quality of life. Recent advances in research are expanding the medical community's understanding of headaches and are creating more options for effective treatments. Headache management involves understanding the problem, identifying factors that precipitate headaches, and working with your physician on self-care measures, coping strategies, and possibly drugs to help reduce the number and severity of migraines.

More information on headaches and their treatment can be obtained from the National Headache Foundation at <http://www.headaches.org/>; the American Council for Headache Education at www.achenet.org; the Journal of the American Medical Association Migraine Information Center; and the Mayo Foundation for Medical Education and Research.

TABLE

HEADACHE MANAGEMENT TIPS

- Keep a diary to determine what triggers your migraines.
- Avoid trigger foods and eat a regular healthy diet.
- Try muscle relaxation exercises and techniques such as biofeedback & progressive muscle relaxation.
- Exercise regularly for 30 minutes on most days, but be sure to warm up slowly.
- Reduce the effects of estrogen by avoiding medications containing estrogen.
- Get adequate rest, but don't oversleep.
- Rest and relax in a dark, quiet room when you feel a headache coming on.
- Quit smoking.
- See a counselor to learn techniques for managing stress and coping with pain.
- Consider nontraditional complementary therapy such as acupuncture, massage, or the herb feverfew.

POC: Ms. Lisa Young, DSN 584-7844, 410-436-7844, or 1-800-222-9698.

STUDY WEB AWARD

The website, <http://chppm-www.apgea.army.mil/ento/erlichio.htm>, was selected as a featured site in Lightspan's StudyWeb as one of the best educational resources on the Web by their researchers.

StudyWeb is one of the Internet's premier sites for educational resources for students and teachers. Since 1996, their expert reviewers have scoured the Internet to select only the finest sites to be included in StudyWeb®'s listing of educational links. Ms. Sandra Evans is the creator of this website.

COMBATING AN EIGHT-LEGGED ENEMY

THE THREAT

Ticks are stealthy, bloodthirsty parasites. They lurk around every unkempt blade of grass and lie in wait throughout every forest glade, ambushing the unsuspecting bloke who dares traipse into nature. No matter that there is work to be done, games to be played, wars to be won. Ticks are 'out for blood.' Every man, woman, child, bird and beast, friend or foe, is a target. They feast on us quietly, painlessly, oftentimes undetected on a secluded part of our bodies that we can't readily see. Even as the barbed blades of their mouthparts slowly saw into our skin like a minute electric knife, anesthetics in their saliva mask the assault. Deadly germs can follow. It's a wonder we have the nerve to step outdoors at all...

This assault is nothing new. Ticks have been around for hundreds of millions of years, plaguing both man and his livestock. More recently, we have become aware of the very serious diseases that ticks can spread and the disruption that they can have on the military mission. For example, in 1999, a soldier died after contracting a tick-borne illness during routine training exercises at a CONUS Army installation. Over the years, studies and surveys of soldiers involved in deployment or training activities have repeatedly indicated that ticks significantly impeded the performance of duties due to bites and sickness,

as well as associated fear, discomfort, and distraction. Ticks have caused soldiers to leave their posts, change their routes or locations, abandon their cover, and disclose their positions, thereby jeopardizing operational readiness.

Although worldwide, mosquitoes rank as the number-one vector of human disease (take malaria, yellow fever, dengue, and West Nile encephalitis for instance), in the United States, ticks account for the bulk of arthropod-borne disease cases. For example, in 1998 close to 17,000 cases of Lyme disease alone were reported to the Centers for Disease Control and Prevention, although it is estimated that the actual incidence may be as much as ten times higher.

And, Lyme disease is not the only illness spread by ticks. In the U.S., there are approximately ten tick-borne diseases of concern: Lyme disease (LD), Rocky Mountain spotted fever (RMSF), human monocytic ehrlichiosis (HME), human granulocytic ehrlichiosis (HGE), babesiosis, relapsing fever, tularemia, Colorado tick fever, Powassan encephalitis, and tick paralysis. In Europe, Asia, Africa, and other parts of the world, additional tick-borne illnesses such as tick-borne encephalitis (TBE) and Crimean-Congo hemorrhagic fever (CCHF) pose a very serious threat.

Some of these diseases are prevalent (e.g. LD); others are rare (e.g. Powassan encephalitis). Some are long-established and well-known (e.g. RMSF); others are 'newly-emerging' and only more recently recognized (e.g. HGE). Some are widespread (e.g. LD); others are geographically focal (e.g. Colorado tick fever). Some are nationally reportable to the CDC (RMSF, LD, and more recently HME and HGE); the others are reported by less standardized or more anecdotal means.

Each disease can exhibit a whole gamut of symptoms ranging from mild or self-limiting, to severely debilitating or fatal. To further complicate matters, there is increasing evidence that individual ticks can carry and may transmit two or more infectious agents simultaneously, thereby increasing the severity and complexity of symptoms and compounding the difficulty of diagnosis and treatment.

As of 1998, a total of 929 cases of Lyme disease and 142 cases of RMSF had been reported by surveillance systems across the U.S. military services. It is suspected that like the CDC's statistics, military figures may also grossly underestimate the actual number of tick-borne disease cases. Reasons for the shortfall include a wide array of factors, such as: failure of individual physicians or clinics to submit a report; inability to confirm a diagnosis due to lack of reliable lab tests; indiscriminate prophylactic antibiotic treatment of a tick bite; lagging presentation of symptoms, coupled with frequently changing residency or training/deployment situations; evaluation of some patients, especially civilian personnel, at non-military health care facilities; misdiagnosis; failure of affected individuals to visit a clinic for what may seem to be just 'the flu'; and inconsistencies between reporting systems within and between the military departments.

Because large numbers of Service personnel are frequently exposed to heavily tick-infested areas during training and deployment throughout the world, there is an increased potential for newly emerging pathogens to make an early appearance in this population. Military medical authorities are often the first to detect an unexpected number of previously

healthy individuals becoming ill at the same time and/or place. For example, the discovery and isolation of the agent of human monocytic ehrlichiosis was made in 1989 in military reservists training at Fort Chaffee, Arkansas.

Another tick-borne disease threat associated with military operations is the potential for contamination of the blood supply by Service personnel who have been exposed to ticks, either in the United States or abroad. Many native or exotic, recognized or emerging, tick-borne pathogens may remain in the blood stream for varying periods of time following infection via a tick bite. Personnel who have had exposure to ticks, and who may be asymptomatic carriers or who may not yet be experiencing symptoms, may unknowingly donate blood that is infected with these pathogens.

Obviously, ticks are seriously cramping our style. So, what can we do about it? We may be outnumbered and outappendaged, but we don't have to be outmaneuvered. The fact that we're smarter than ticks makes us aware that the problem is a complex one that will require a multi-pronged strategy, both offensive and defensive. Education, behavioral adaptations, environmental surveillance and control techniques, personal protective measures, improved diagnosis and treatment algorithms, and Command emphasis all play a role in preserving the health of the fighting force, their dependents, and civilian personnel.

Through its **DOD Human Tick Test Kit Program**, the Entomological Sciences Program is assisting in the fight against this eight-legged enemy. See the article that follows.

POC: Sandra R. Evans, DSN 584-3613; Commercial (410) 436-3613; Sandra.Evans@apg.amedd.army.mil. Visit our website for further information and educational materials regarding the DOD Human Tick Test Kit Program, tick-borne diseases, personal protective measures, and tick control: <http://chppm-www.apgea.army.mil/ento>.



Combating an Eight-Legged Enemy

DOD Human Tick Test Kit Program: **A 'First Alert'**

Although worldwide, mosquitoes rank as the number-one vectors of human disease (led by malaria with 200-500 million cases per year), in the United States ticks are the major culprits. There are 10 tick-borne illnesses of concern in the U.S.: Lyme disease (LD), Rocky Mountain spotted fever (RMSF), human monocytic ehrlichiosis (HME), human granulocytic ehrlichiosis (HGE), babesiosis, relapsing fever, tularemia, Colorado tick fever, Powassan encephalitis, and tick paralysis. Lyme disease accounts for the bulk of the cases (16,273 reported to the Centers for Disease Control and Prevention in 1999, and over 150,000 cases since 1982). Even though the other diseases are less prevalent, they can nevertheless be very serious and sometimes fatal. For example, in 1999, a soldier died after contracting HME during routine training exercises at a CONUS Army installation.

To help combat the tick-borne disease health threat, the Entomological Sciences Program (ESP) of the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) provides a free tick identification and testing service for Department of Defense health clinics in CONUS. This service is known as the DOD Human Tick Test Kit Program, and it serves as a 'first alert' for tick-bite patients and their health care providers. **The service is free!**

Since different tick species transmit different pathogens (or groups of pathogens), and since many tick-borne diseases exhibit virtually identical early

symptoms, it may be difficult for the health care provider to confidently evaluate and monitor a tick-bite patient. In addition, there is increasing evidence that in some cases a single tick may be infected with, and simultaneously transmit, more than one kind of pathogen, further complicating the clinical picture. Knowledge of tick species and infection status can alert the physician to specific diseases, thereby facilitating expedient diagnostic and treatment determinations.



The ESP provides Tick Test Kits to DOD clinics upon request. Health care providers can then use these kits to submit ticks that have been removed from tick-bite patients to the ESP for species identification and pathogen analysis. Each kit consists of a non-breakable screw cap specimen vial in which to place the tick, an [instruction sheet](#), a [CHPPM Form 321-R \(Submission of Specimens from Human Tick-Bite Patients\)](#), which should be filled out and mailed back to the ESP with the tick, and a preaddressed mailing envelope. Additional [Guidelines for Use of the Tick Test Kit and How to Interpret the Results](#) can also be found on our website which is annotated at the conclusion of this article.

The ESP uses DNA technology known as polymerase chain reaction (PCR) to analyze ticks for evidence of infection with the agents of four tick-borne diseases: LD (*Borrelia burgdorferi*), RMSF

(*Rickettsia rickettsii*), HME (*Ehrlichia chaffeensis*) and HGE (unnamed ehrlichia, closely related to *Ehrlichia phagocytophila*, a pathogen of sheep and cattle, and currently designated 'agent of HGE'). Live, as well as dead, ticks are tested. In addition, relative tick engorgement level is also noted: the longer a tick is attached, the more engorged (filled with blood) it becomes, and the greater the risk that transmission will occur if the tick is infected. Therefore, potential disease risk increases with engorgement level.

Results of tick I.D. and engorgement level are telephonically reported back to the clinic within 1 day of receipt at ESP; results of analysis are likewise telephonically reported, usually within a week. The original CHPPM Form 321-R is then returned to the clinic with all of the laboratory results annotated on side two of the form. CHPPM Form 321-R can serve as documentation of the tick-bite incident for the patient's medical record.

In CY 2000, 80 DOD health clinics submitted 3,431 ticks to the ESP. Of these, 84 (22.2%) of the blacklegged ticks were positive for LD, 36 (1.4%) of the lone star ticks were positive for HME, 16 (4.2%) of the blacklegged ticks were positive for HGE, none of the American dog ticks were positive for RMSF, and 6 (1.6%) of the blacklegged ticks were positive for both LD and HGE (see Table). Note that specific tick species were only analyzed for those pathogens for which they are known to be confirmed competent vectors (e.g. American dog ticks were only tested for the agent of RMSF; they do not transmit the other pathogens). Although lone star ticks were analyzed for *B. burgdorferi*, studies have not shown them to be effective vectors of this pathogen. However, a syndrome resembling Lyme disease has been associated with some bites by lone star ticks, primarily in the southeastern and south central states. It is currently unknown what organism is responsible for those symptoms (perhaps an as yet

unidentified strain of *B. burgdorferi*, or another species of *Borrelia* entirely; this remains the subject of ongoing controversy and research).

USACHPPM'S TICK TEST KIT PROGRAM Ticks Removed from Humans, CY 2000

Species	Identified	Tested	Positive Results			
			LD ¹	HME ²	HGE ³	RMSF ⁴
<i>Ixodes scapularis</i> (black-legged tick a.k.a. 'deer tick')	386	379*	84	---	16	---
<i>Amblyomma americanum</i> (lone star tick)	2554	2529	8	36	---	---
<i>Dermacentor variabilis</i> (American dog tick)	485	485	---	---	---	0
<i>Amblyomma maculatum</i> (Gulf Coast tick)	2	0	---	---	---	---
<i>Rhipicephalus sanguineus</i> (brown dog tick)	3	3	---	---	---	0
<i>Ixodes pacificus</i> (western black-legged tick)	1	1	0	---	0	---
Totals	3431	3397	92	36	16	0

1. Lyme disease, caused by *Borrelia burgdorferi*
 2. Human monocytic ehrlichiosis, caused by *Ehrlichia chaffeensis*
 3. Human granulocytic ehrlichiosis, caused by a currently unnamed pathogen
 4. Rocky mountain spotted fever, caused by *Rickettsia rickettsii*
 * 6 of these ticks were confected with *B. burgdorferi* and the agent of HGE

Overall, three tick species remain the most common human biters, particularly in the eastern half of the U.S.: *Ixodes scapularis* (blacklegged tick, more commonly known as the 'deer' tick), *Amblyomma americanum* (lone star tick), and *Dermacentor variabilis* (American dog tick). However, depending upon the geographic area of the country, bites are also incurred by other species, including *Ixodes pacificus* (western blacklegged tick), *Dermacentor maculatum* (Gulf Coast tick), and *Rhipicephalus sanguineus* (brown dog tick), among others.

If you wish to have your health clinic participate in USACHPPM's DOD Human Tick Test Kit Program, or if you would like additional information on this service, please contact the Entomological Sciences Program at DSN 584-3613 or commercial (410) 436-3613, POC: Sandra R. Evans, Sandra.Evans@apg.amedd.army.mil. Visit our website for further information and educational materials regarding the Tick Test Kit Program, tick-borne diseases, personal protective measures, and tick control: <http://chppm-www.apgea.army.mil/ento>.

THE DARK SIDE OF SUNLIGHT



Every spring many individuals will receive painful sunburns that could be avoided. Sunburn not only can lead to lost-time injury, but can also lead to delayed health problems like skin cancer. Many forget (or are simply

unaware) that one American dies of skin cancer every hour. New research also suggests that adverse effects on the immune system are possible from the ultraviolet radiation in sunlight. In recent studies in Holland, ultraviolet radiation exposure showed some suppression in the development of immunity after Hepatitis B vaccination. Further research is underway to study the adverse impact of solar exposure on individuals following vaccinations.

The risk for developing skin cancer and these other problems could be greatly reduced by paying serious attention to protecting the skin from excessive exposure to the ultraviolet rays (UVR) in sunlight. Proper clothing and less time spent outside during the most severe hours of exposure at midday can greatly reduce the risk. Army clothing is designed to optimize protection of exposed skin areas.

The Laser/Optical Radiation Program has produced several informative documents to warn individuals on the risk of excessive exposure to sunlight. These include:

- **Sun Protection Poster.pdf** - A full-color poster, "Sun Protection – Questions and Facts for Soldiers," which may be printed on 8.5" x 11" paper, or inserted in documents and sized as needed. Specialized printers can print larger sizes.

- **UV Business Card.doc** - A two-sided quick-reference card suitable for reproducing on Avery 5371 business card stock.

- **UVR Protection Guidance.pps** - A full-color PowerPoint presentation that allows the user to browse information on UVR hazards and protection. The presentation includes a macro that the user may select to print the presentation; however, this macro must be enabled when the presentation is opened. 24" x 30" copies of the poster are available upon request. Also, all three documents are available on CD upon request. POC: Mr. Stephen Wengraitis at: Stephen.Wengraitis@apg.amedd.army.mil.

The files may also be individually downloaded from the Laser/Optical Radiation Program website at:

[http://chppm-www.apgea.army.mil/laser/Publications/Fact Sheets/Sun Protection Poster.pdf](http://chppm-www.apgea.army.mil/laser/Publications/Fact%20Sheets/Sun%20Protection%20Poster.pdf) (See Cover)

[http://chppm-www.apgea.army.mil/laser/Publications/Fact Sheets/UV Business Card.doc](http://chppm-www.apgea.army.mil/laser/Publications/Fact%20Sheets/UV%20Business%20Card.doc)

[http://chppm-www.apgea.army.mil/laser/Publications/Fact Sheets/UVR protection guidance.pps](http://chppm-www.apgea.army.mil/laser/Publications/Fact%20Sheets/UVR%20protection%20guidance.pps)

POC: Mr. Stephen P. Wengraitis, DSN 584-5051, 410-436-5051, or 1-800-222-9698.

ARE CELL PHONES HAZARDOUS TO OUR HEALTH?

Cellular phone usage has increased dramatically in the last decade. Currently there are over 100 million cell phone users in the U.S. and 500 million users worldwide. Cell phones emit radiofrequency (RF) radiation just like microwave ovens, radio and television broadcasting towers, radar systems, transmitting satellite communications, and CB radios, to name a few. Cell phones in the U.S. are in the 800 MHz and 1800-1900 MHz frequency bands of the electromagnetic spectrum. Periodically, we hear from the media of suspected health risks – typically with regard to cancer. Are there health risks from the RF radiation emitted from cell phones?

As the Department of the Army's proponent for RF radiation protection, the Radiofrequency/Ultrasonic Program has been asked this question since 1984 (the first year cell phones were introduced in the U.S.). There are two basic areas of concern with regard to cell telephones - the handheld cell phone units themselves and the towers to which the cell phones communicate. The cell phones themselves are targeted because the antenna is used close to the head. Cell phone antenna towers are targeted because they are so visible in our communities and assumed by some people to emit high levels of RF radiation.

Why are health concerns raised? Many times when the average citizen hears the word radiation, he/she thinks of x-radiation that is ionizing radiation that can break chemical bonds. High doses of ionizing radiation can cause cancer, birth defects, and chromosomal damage. Radiofrequency radiation does not have enough energy to cause ionization and is therefore considered "nonionizing".

High levels of RF energy absorption can cause biological effects to humans. Most effects reported in scientific literature are thermal, i.e. heating of body tissues - much in the same way that microwave ovens heat food. Of course, a microwave oven has a power output that is 1000 times greater than a cell phone (600 watts vs. 600 milliwatts) because the

radio waves are used intentionally for the heating of food rather than for communication purposes.

Due to the possibility of thermal heating from RF exposure, RF personnel exposure standards have been developed by National and International Organizations, and Government agencies. These standards cover the RF portion of the electromagnetic spectrum from 3 kHz to 300 GHz, including the frequencies used for cellular communications. The RF personnel exposure standards used by the DA and DOD (DODI 6055.11) are adapted from those of the American National Standards Institute (ANSI)/ Institute of Electrical and Electronics Engineers (IEEE). That standard is a national consensus standard developed by research, government, and private industry. All of these RF exposure standards are based on scientific research of potential biological effects from RF energy absorption and incorporate at least a 10-fold safety factor to protect humans from RF levels shown to cause biological effects.

The RF radiation levels emitted by cell phones or cell phone towers do not exceed the levels specified by the ANSI, IEEE, and DOD for human exposure and are much lower than any exposure levels shown to cause adverse effects.

As research studies continue worldwide to determine if there are long-term health effects from low-level RF exposure, the Radiofrequency/Ultrasonic Program will continue to monitor the latest findings and participate on DOD, national, and international standardization committees

Fact sheets and numerous links on cell phone issues and other RF radiation issues can be obtained by viewing our web site at:

<http://chppm-www.apgea.army.mil/rfup/website/home.htm>

POC: Mr. Brad J. Roberts, DSN 584-6604, 410-436-6604, or 1-800-222-9698.

RADIO FREQUENCY (RF)/ULTRASOUND PROGRAM - TWO NEW AND ONE REFURBISHED ANECHOIC CHAMBERS

Anechoic Chambers are the Alternative to OATS

While many standards call for electromagnetic compatibility testing to be conducted at Open Area Test Sites (OATS); these sites present many problems for the test engineer. OATS testing can be delayed by weather; ambient broadcast frequency noise, and environmental factors. They can also interfere with local broadcast systems, etc. Our new Free Space Anechoic Chamber Test-sites (FACTs) are the ideal alternative sites. They shield test procedures from ambient noise and eliminate disturbance to the environment during the testing process. These three anechoic chambers are shielded structures with selected absorbing material linings that simulate ideal OATS conditions.

RF Laboratory Analysis

We use these chambers to setup, modify and adapt numerous electronic test, measurement, and diagnostic equipment subsystems for generating RF fields with specified characteristics (i.e., frequency, power density). Two chambers have positioning equipment that is controlled via computer automation in conjunction with an Automated Calibration System for measuring and controlling test equipment. The system provides field strength levels used for testing non-ionizing radiation monitoring equipment. This gives us the ability to test and maintain complex electronic systems that are unique to our Program.

Overexposure Assessment

We have the ability to setup test-jigs to accommodate unusual mission requirements. We can perform laboratory tests that simulate related field equipment that is in question and initiate appropriate corrective action, if necessary.

Serves as Specialized Training Laboratory

Laboratory training mockups of actual RF transmitting, receiving, and monitoring equipment is set up for RFR Hazards Workshop demonstration as part of an annual course on RF radiation protection sponsored by the AMEDD Center and School, Fort Sam Houston, Texas, and USACHPPM. POC: Mr. John DeFrank, DSN 584-3353, 410-436-3353, or 1-800-222-9698.

MICROWAVE OVEN PROGRAM UPDATE

The requirement to perform periodic radiation leakage surveys from microwave ovens was rescinded by the Office of The Surgeon General in a Memorandum dated 30 October 1991. This document is posted at

<http://chppm-www.apgea.army.mil/rfup/website/publicat.htm>

In the past 10 years since this memorandum was issued, we have received no reports of microwave ovens with excessive leakage levels. We still maintain microwave oven survey instruments for those who need to borrow one to conduct a survey.

There is no requirement to post warning signs near microwave ovens for pacemaker users. These devices are not susceptible to interference from microwave oven leakage. Operating instructions are posted on the microwave oven by the manufacturer as required by public law. Pacemaker warning signs should be removed from Army facilities.

Contact the RF/Ultrasound Program for assistance on anechoic chambers or microwave ovens at DSN 584-3353, 410-436-3353, or 1-800-222-9698.

THE INDOOR AIR WE BREATHE

According to the World Health Organization, indoor air pollution is responsible for more deaths worldwide than outdoor air even in the most contaminated cities. The U.S. Environmental Protection Agency (EPA) considers indoor air quality one of the four most important environmental health risks in North America. The others are atmospheric air pollution, toxic chemicals in the workplace, and contaminated drinking water. Americans often spend close to 90 percent of their time indoors. The EPA studies also show that levels of common air pollutants are regularly two to five times higher indoors than outdoors.

Indoors, air pollutants fall into three categories: biological, gaseous, and particulate. Biological pollutants refer to organisms like airborne bacteria, fungi, and viruses or byproducts of living things, such as dust mite droppings. Gaseous pollutants could be volatile organic compounds that are released while

using cleaning products, carbon monoxide generated by poorly maintained heaters and stoves, or radon gas that seeps in through cracks of your home foundation. Particulates, such as fine particles of ash, dust, and soot are constantly present in our indoor environment.

Allergies are the most common problem associated with indoor air pollution. Experts estimate that 20 percent of the American population has some form of airborne allergy. Allergens can be big trouble for the estimated 17 million Americans with asthma. Dust mites rank as the number one allergen, with cockroach dust in a close second. Molds can cause both allergic and toxic reactions and are, of all indoor air pollutants, the hardest to eliminate. Every indoor dwelling has these allergenic or toxic culprits in them. Often invisible to the naked eye, they cause trouble when they are inhaled, either by themselves or attached to dust particles.



Vicki Hawkins, industrial hygienist, investigates an Army housing unit that has severe water damage and mold growth.

While it is impossible to get rid of all biological contaminants in your home, you can keep them from taking over. The best defense is to keep a clean, dry home. Here are some helpful tips:

- Encase mattresses, box springs, and pillows in non-allergenic, zippered plastic coverings.
- Avoid down and feather bedding materials and wash bedding weekly in hot water (over 130 degrees Fahrenheit).
- Keep heating, cooling, humidifying, and dehumidifying systems clean. Change or cleanse filters monthly; change humidifier water trays and wipe down parts with each use.
- Keep humidity below 50 percent, ideally between 30-40 percent. Using fans while cooking and showering helps. Make sure those fans, as well as your clothes dryer, vent to the outdoors, not to a crawl space, where moisture can linger and turn into mold.
- Clean, dry, or remove anything from your home that is water-damaged, particularly carpets. If you are installing new wall-to-wall carpet over a concrete floor, be sure to have an effective moisture barrier installed beneath it. Area rugs are a better choice for control of biological pollutants.

- Ventilate and dehumidify attics and crawl spaces.
- Keep bathrooms dry and ventilated. Mold growth can be removed with commercial products or a weak bleach solution (1 cup of household bleach in 1 gallon of water).
- Use a high-efficiency filter bag in your vacuum (or install a central vacuum system that vents outside your home as the dryer does). Remember to vacuum upholstery; dust mites can thrive in couches and chairs too.

If your home has a forced air system and you are considering having ducts cleaned professionally, visit this EPA web site for precautions and advice: www.epa.gov/iaq/pubs/airduct.html.

To find out more about Indoor Air Quality or our Industrial Hygiene Field Services Program activities and services, contact Ms. Vickie R. Hawkins, DSN 584-3144, 410-436-3144, or 1-800-222-9698.



TEAM WORK



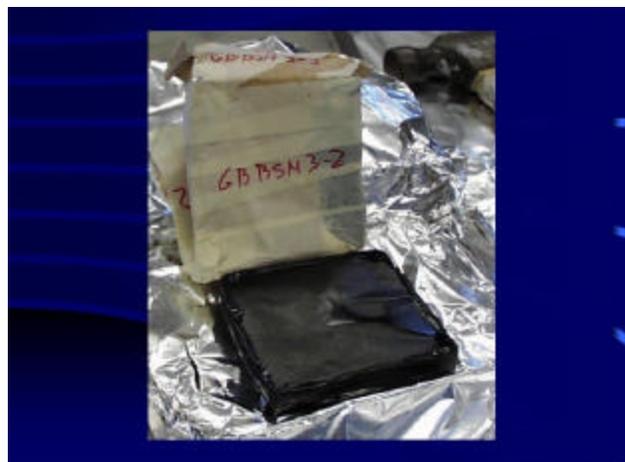
LTC Roxanne Baumgartner, Director of Toxicology, and Dr. Leslie Chaney, toxicologist, prepare to brief at GOSNIOKhT, Moscow

Under the Cooperative Threat Reduction program, both the U.S. and the Russian governments have committed to destroying their stockpiles of chemical weapons. There are greater than 32,000 tons of organophosphate chemical warfare agents currently stored in Russia. Since 1997, the Directorate of Toxicology (DTOX) has supported the efforts of the Russian Federation in evaluating the toxicity of end-products resulting from the Russian two-stage chemical agent destruction process.

The DTOX provided technical assistance to scientists at two Russian facilities, the Scientific Research Institute of Hygiene, Occupational Pathology and Human Ecology also known as RIHOPE in St. Petersburg, and GOSNIIOKhT, Moscow. A team of key researchers from DTOX made several trips to both St. Petersburg and to Moscow. These trips were to coordinate research and share results from their parallel studies. Lt. Col. Roxanne

Baumgartner, Lt. Col. David Young, and Dr.'s Leslie Chaney and Glenn Leach coordinated our overall role. Dr.'s Mark Johnson and Laurie Roszell coordinated the immunology work. Richard Angerhofer coordinated the developmental and reproductive assays, and Dr. Michael Major was consulted regarding the chemistry of the demilitarized products. In addition, Robyn Lee assisted in interpreting the statistical analyses of the results.

The DTOX scientists collaborated with their Russian counterparts in toxicological study design, execution, and analyses. There was some concern that leaching of material from stored end-products could potentially contaminate water sources, soil, and air, impacting the environment. Favorable toxicological results from these studies allowed the end-products to be classified as low-hazardous substances, suggesting the potential for disposal as a low hazard industrial waste. Further studies are necessary to determine the suitability of the end-products for industrial use.



Sample of bituminous salt mass submitted for toxicity testing

In their off-duty time, the team visited Moscow, Red Square and the local market. In St. Petersburg, the team also visited the Summer Palace, the Cathedral of Peter and Paul, and the Hermitage. At the conclusion of three of the meetings between the Russian researchers and the CHPPM team held in St. Petersburg, the Russians invited the CHPPM team to their dacha for a celebration. A dacha is a

country cottage the locals retreat to during the warmer months. The team was treated to a fire-roasted shish-kebob outdoor cookout, where the group traded toasts to their continued success and future collaboration. POC: LTC Roxanne Baumgartner, DSN 584-7387, 410-436-7387, or 1-800-222-9698.

AAALAC INTERNATIONAL SITE VISIT

The Association for the Assessment and Accreditation of Laboratory Animal Care International (AAALAC-International) is a non-profit organization that reviews animal care and use programs worldwide to identify best practices and suggest program improvements. AR 70-18 requires all animal care and use programs within DOD to seek AAALAC international accreditation. Other agencies in the area of Edgewood, which maintain this classification, are the US Army Edgewood Chemical and Biological Center and US Army Medical Research Institute of Chemical Defense.

The triennial site visit to the animal care and use programs of USACHPPM was conducted on 24 May 2001. The site visitors, recognized leaders in the field of animal welfare and animal research and testing, were Dr. Leticia V. Medina, DVM (Ad Hoc member), Abbott Laboratories, accompanied by Dr. Joseph R. Haywood, PhD, Professor, Department of Pharmacology, University of Texas Health Science Center, San Antonio, (AAALAC council member).

During the in-brief, attended by Stephen Kistner, Deputy for Technical Services and designated institutional official, key staff members were given instructions in the process of site visit and council actions. They included: Kistner, Lt. Col. Roxanne Baumgartner, Director of Toxicology; Dr. Joseph Knapik, IACUC Chair; Maj. Newton Foster, Attending Veterinarian; Dr. Glenn Leach, Program Manager, Toxicity Evaluation; Dr. Laurie Roszell, Acting Program Manager, Health Effects Research; Evelyn Riley, Public Affairs Officer; and Gene Sinar, Quality Systems Office.

After the in-brief, the site visit team conducted an evaluation of the animal care and use programs

based upon the program description provided by Foster. The site visit team toured all facilities that serve these important programs. The site visit team met with the members of the Institutional Animal Care and Use Committee (IACUC) who explained the process of protocol (animal use description) approval and program oversight.

The site visit team met in private session to review the program documentation and prepare an assessment of the animal care and use program. The team convened the key institutional members to perform an out-brief and discussion of findings. The USACHPPM programs received more accolades than recommendations for improvement. Haywood stated, "I believe this is the first time I have had more praise for a program than suggestions".

The program suggestions for improvement were discussed at the recent IACUC meeting on 12 June 2001. These recommendations will be implemented to continue to maintain the quality of animal use studies at this Center. Following the visit to USACHPPM, the recommendations of the site visitors will be forwarded to AAALAC International Council for consideration. The Council will determine our status at the quarterly council meeting. USACHPPM will receive written notice subsequent to that meeting. Site visitors stated that we would likely be awarded continued full accreditation. This is the highest level of accreditation given to an organization.

All members of the USACHPPM team should be proud of the success of the animal care and use programs and strive to continue to be all we can be as an Army of One.

USACHPPM-Pacific

SUMMER TIME

Summer is here and more of us will be out to enjoy the weather. For those venturing into the heat, taking precautions to prevent heat injuries should be followed. There are three main types of heat injuries: heat cramps, heat exhaustion, and heat stroke. Knowing what to do for a heat injury can prevent the summer from ruining your activities.

The type of heat injury will determine the treatment required. Proper diagnosis of the type of heat injury is crucial to prevent further injury or damage occurring.

Heat cramps are the most common type of heat injury. Almost everyone has at one time or another experienced heat cramps while participating in outdoor activities. Heat cramps are characterized by a severe cramp-like pain in the legs or abdomen area. The pain may be accompanied by dizziness, weakness, or profuse sweating. Heat cramps occur most often during or after exercise. Persons with heat cramps should stop the activity, move to a cooler area, and drink fluids, preferably water.

Heat exhaustion happens when one is exposed to heat for prolonged periods of time. Heat exhaustion can cause nausea, vomiting, weakness, reduced level of consciousness, pale skin, and profuse sweating. Persons with heat exhaustion may exhibit confusion or appear drunk. Persons with heat exhaustion may become combative and care should be exercised when dealing with them. Your actions and voice should be calm but controlling. Move the person to a cool environment furnished with water, legs elevated to prevent fainting, and ice packs applied to the body. Ice packs should be placed on areas of the body where skin is thinnest to quickly cool the body. Areas such as the backs of knees, wrists, neck, groin, and underarms are excellent for ice-bag placement. If ice bags cannot be located, wet towels or clothing can be used.

Heat stroke can lead to death and is a medical emergency. The person may exhibit some or all of the symptoms listed above for heat cramps and exhaus-

tion but will have stopped sweating. The lack of sweat indicates the body's temperature-regulation mechanism is dysfunctional. Seek medical attention immediately. Reduce the body temperature as quickly as possible with water or ice. Provide the patient with water and monitor carefully until medical attention arrives.

Heat-injury risk can be reduced or eliminated entirely by utilizing some common-sense tips. The average adult's body weight is made up of about 10 to 12 gallons of water (about 55 to 75 percent of body weight). An elderly person's body is only about half water. The average adult loses about two-and-a-half quarts of water a day during normal bodily functioning. Moderate or strenuous activity can increase the body's amount of water loss. Therefore, it is important to maintain hydration.

Hydration can be measured by monitoring urine. Urine should be pale yellow or clear. Morning urine may be a bit darker because the body wasn't hydrated throughout the night. Bright or dark yellow urine indicates moderate dehydration. Many people are chronically dehydrated and, as a result, are at higher risk for heat injuries. Brown urine indicates severe dehydration and medical attention should be sought.

The average adult is encouraged to drink 8 to 12 cups of water a day (8 ounces each). If you are physically active, you should add one to three cups for each hour of activity. Fruit juice, milk, decaffeinated beverages, and some sports drinks are good alternatives for those who prefer something besides water. Avoid alcoholic and caffeinated beverages because they can promote further dehydration.

Try to drink cool drinks to help reduce your body's temperature. Remember that humidity can decrease the body's ability to cool itself because perspiration doesn't evaporate as quickly as it does in dry weather. POC: Ms. Janet Methvin, DSN 263-8499.



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