

Mountain Post Medical Update



Cold Weather Injuries

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During the 5 year period of 1997-2001 there were 1714 reported cases of cold weather injuries (CWI) in the US Army. During this time period Fort Carson had over 100 cases of CWI. Yet, cold weather injuries are preventable. It is well understood that commanders and individual soldiers are responsible for the prevention of cold weather injuries. In order to effectively prevent cold weather injury all personnel must be aware of conditions that cause cold weather injuries and be familiar with the proper use of cold weather equipment.

Cold weather injuries may be divided into two categories - freezing and non-freezing. - A freezing injury is frostbite - crystallization of water in the skin and adjacent tissues.

- The nonfreezing types are hypothermia, trench foot, immersion foot and chilblains.

Hypothermia is when the internal or core body temperature drops below normal. This is a life threatening cold weather injury. Trench foot and immersion foot are both caused by prolonged exposure to a cold, wet environment. Although caused by differ-

ent circumstances, they are recognized and treated the same - the term "trench foot" will be used to refer to both. Chilblains are the reddening of skin and aching after exposure to cold.

The primary cause of cold weather injury is low ambient temperature, usually below 32 degrees F but the wind chill factor can affect personnel at temperatures as high as 50 degrees F. Other factors to consider include; wet and/or tight clothing and boots, immobility under fire, fatigue, prolonged exposure, lack of opportunity to rewarm

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Blood Pressure Statistics

- 50 million Americans have high blood pressure
- 1 in four adults
- 1/3 are unaware of their problem
- Deaths from high blood pressure are up 21% in past 10 years
- Another 23 million adults have "high normal" pressure increasing risk by 60% to 80%
- 44% of all persons 50 or older have high blood pressure
- At age 60+, one of every two persons has high blood pressure
- The lifetime probability of having high blood pressure is 90%

Malaria and Southwest Asia

Malaria is a public health problem today in more than 90 countries, inhabited by a total of 40% of the world's population. In Southwest Asia the presence of malaria is very geographically dependent. Several countries do not appear to have any malaria present (Kuwait, Jor-

dan, Lebanon, and Qatar) while other countries have malaria in certain regions (Iraq, Syria, Turkey, Kazakhstan, Afghanistan, Djibouti, Iran, Pakistan, Saudia Arabia, UAE, Yemen).

To better understand the concerns with malaria and the strategies for interven-

tion, a good overview of malaria, as a disease, is necessary.

Malaria is caused by one of four plasmodium parasite species (Plasmodium vivax, ovale, malaria, or falciparum). Many countries have more than one of

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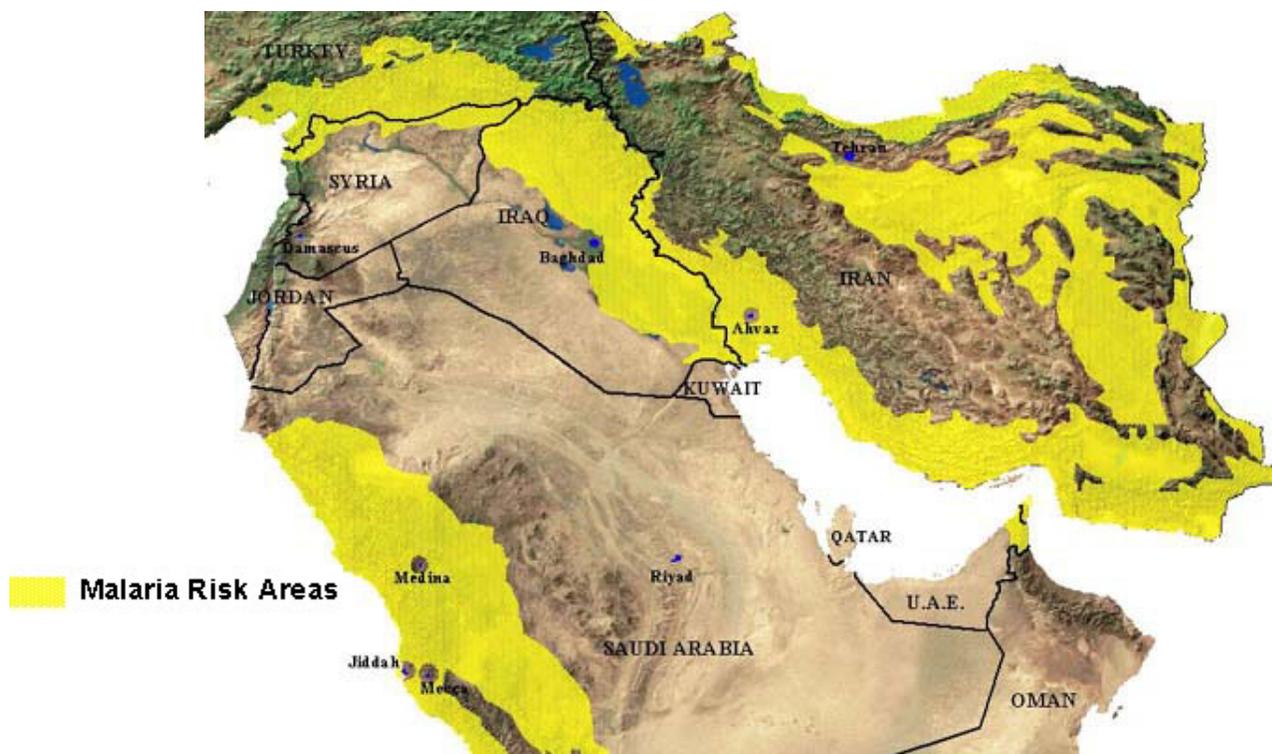
Malaria and Southwest Asia

these parasites present, usually *P. falciparum* and *P. vivax*. The parasite, *P. falciparum*, causes a life threatening infection while *P. vivax* very rarely causes more than episodic bouts of fever, chills, and other self-limiting (flu-like) symptoms. In Iraq, *P. vivax* accounts for more than 95% of the cases of malaria with the other 5% caused by *P. falciparum*. The parasite has a very intricate life cycle that depends on infected humans, a specific anopheles mosquito, and back to humans. Only humans carry the parasite. A specific anopheles mosquito must obtain the sexual stage of the parasite in a blood meal from an infected human. The parasite matures in the mosquito over a 10-day period. The infected mosquito then transmits the parasite to other uninfected humans during subsequent blood meals. The risk of malaria is therefore dependent on the presence of the mosquito as the vector. The risk for malaria in CENTCOM AOR countries is generally during the April-November time frame.

A unique characteristic of *P. vivax* is the ability of the parasite to reside in the human liver after initial infection. It is possible, therefore, to have symptoms of malaria more than 6-9 months after infection. For this reason, the addition of primaquine given once a day for 14 days after departure from a malaria region is beneficial. The primary intervention focus is on the prompt and effective treatment of all human cases of malaria disease, elimination of the

anopheles mosquito near human populations, and protective measures that prevent mosquitoes from biting humans. Personal protection measures include the use of permethrin treated uniforms for soldiers, application of DEET containing insect repellent on exposed skin, and the use of permethrin treated bed nets when sleeping in the field setting.

The estimated "attack rate" for malaria in Iraq is 1% per month. Thus for 100,000 soldiers in Iraq that are exposed but unprotected an estimated 1000 soldiers would develop malaria in one month. This risk definitely justifies the use of countermeasures (personal protection measures along with chemoprophylaxis). The drugs most often used to prevent malaria are chloroquine, mefloquine, and doxycycline. A fairly new drug, malarone, is also available. The most commonly used anti-malaria medication is chloroquine given once a week. An alternative is mefloquine given once a week. There are specific contraindications to the use of mefloquine so a medical provider will need to assess the appropriateness of taking this medication for each individual. Finally, doxycycline can be used but must be taken on a daily basis. The decision on which drug to use is complicated by regional variance in drug resistance to chloroquine. It is believed that there may be some *P. falciparum* drug resistance to chloroquine in Iraq. Approximately 95% of the malaria cases would be from *P. vivax* with possibly 5% coming from *P. falciparum*. Primaquine would also be needed for terminal chemoprophylaxis due to the la-



Cold Weather Injuries Continued



Case of 2nd Degree Frostbite



Case of 3rd Degree Frostbite

and change clothing, lack of time to carry out personal hygiene, and state of nutrition. It is interesting to note that there is a higher incidence in lower ranking individuals. High activity levels can lead to perspiration and wet clothing but too low of activity can cause decreased heat production. Remember it is imperative to drink plenty of water to remain hydrated and to avoid alcohol, which depresses the system, increases heat loss, and increases receptivity to injury.

Classically cold weather injuries are categorized as follows:

Frostbite and Trench Foot - In early stages, individuals may only be aware of a tingling, stinging or a dull, aching sensation followed by numbness. It is during the numbness stage that tissue damage begins. The skin may briefly appear red, then become pale and waxy white. The affected part may feel wooden. If freezing has occurred, the tissue appears dead white and is hard or even brittle with complete lack of sensation and movement. As the injury progresses, the affected skin in black soldiers turns slate gray rather than white. Signs and symptoms of frostbite and trench foot are similar - the major differences are severity of injury and mode of injury.

Hypothermia - This is a life threatening cold weather injury. A person becoming hypothermic usually does not complain of being cold. They become confused and disoriented. A buddy should notice that the soldier is not "normal". Hypothermia can be confused with head injuries, cardiac and respiratory problems and apparent clinical death. In severe cases, the patient is cold, pale, and unconscious and shows no vital signs. Respirations are reduced in frequency and may be so shallow that casual observation may not identify the movement. Pulse may be faint or undetectable because of rigid-

ity of the skin and low heart rate. Blood pressure may also be unobtainable. Patient is unresponsive to painful stimuli, tissue feels semi-rigid and passive movements may be difficult. Every case must be under constant surveillance as death may occur even after successful resuscitation and warming of the body. A hypothermic patient who appears dead should not be assumed to be dead until the patient is carefully warmed to normal temperature and given full resuscitation procedures.

Treatment depends on the time elapsed after the injury, severity of injury, presence of complications, the area affected, tactical situation and facilities available.

First Aid for the cold weather injured person involves the following:

- ✚ Restrict from normal duties and activities until injury can be evaluated.
- ✚ Remove constricting items of clothing from injury site and protect from further injury by wrapping in blankets or non-restricting clothing.
- ✚ Smoking, alcohol, applications of medications, salves and ointments to the injured area are prohibited. Do not break the blisters.
- ✚ If lower extremity is involved, treat as a litter patient with affected part level or slightly elevated. If foot travel is the only means of evacuation for frostbite of the feet, do not thaw until medical aid is reached.
- ✚ In all situations where potential for refreezing exists, do not thaw the affected part until medical aid is reached. Thawing and re-freezing skin is what causes tissue damage.
- ✚ If it is advisable to thaw the affected body part, do not rub snow on the injured area or place the injured area near an artificial heat source, such as an engine exhaust or hot stove. These methods will only cause further injury to

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91 W Training Status Report

	91W	TR	%	Y2	% Y2	EMT	EMT EXP	NEED	NEED
	ASSIGNED	COMPLETE	TR'D	REMOVED	REMOVED	EXPIRED	March-03	BTLS	BNCOC/AIMS
MEDDAC	88	49	56%	43	49%	28	23	35	35
3BCT	169	70	41%	61	36%	44	39	81	75
3ACR	195	96	49%	85	44%	44	49	77	84
43rd ASG	183	73	40%	55	30%	54	69	92	101
Other	8	2	25%	1	13%	3	3	6	5
Total	643	290	45%	245	38%	173	183	291	300

91W transition training status as of 28 February 2003

Walking Versus Vigorous Exercise

Which is most helpful in preventing cardiovascular disease? New data just released from the large Women's Health Initiative study¹ (WHI) helps answer this question. This six year study includes 73,743 women. They compared the number of hours women walked daily and found that those who walked a half hour per day cut their risk of heart disease by 31%. Women who walked an hour a day or more cut their risk even further (42% reduction in risk) compared to non-walkers. Those who engaged in vigorous activity for 30+ minutes daily also lowered their risk by 42%, the same amount as those who walked an hour per day.

Both walking and vigorous activity are beneficial and seem to have a similar affect on risk. The advantage of the vigorous activity, however, is that it takes less time.

Walking + vigorous activity. Next the researchers looked at those women who did both, walking and vigorous activity. Those women who walked at least 2.5 hours per week and got an hour or more of vigorous exercise per week lowered their risk by nearly two-thirds (63%). While brisk walking has good cardio-protective affects, adding an hour per

week of more vigorous activity such as running, bicycling, tennis or other active sports can have additional advantages.

This data agrees with the new recommendations by the Institute of Medicine, that most people need an hour of moderate activity daily for optimal benefit. Half an hour per day gives good benefit, but adding more time and a little vigorous activity appears to provide the best health advantage. When adding vigorous activity, be sure to gradually increase your intensity and time so you don't overdo. If you have any health problems, get your doctor's clearance before adding vigorous activity.

Here is the actual new guideline on fitness recommended by the Institute of Medicine². Physical activity and exercise promote health and vigor. Some benefits can be achieved with a minimum of 30 minutes of moderate intensity physical activity most days of the week. However, 30 minutes per day of regular activity is insufficient to maintain body weight in adults in the recommended body mass index ranges of 18.5 to 24.9 and achieve all the identified health benefits fully. Hence, to prevent weight gain as well as to accrue additional, weight-independent health benefits of physical activity, 60 minutes of daily moderate intensity physical activity is recommended.

1. Manson JE et al. Walking compared with vigorous exercise for the prevention of cardiovascular events in women, New England Journal of Medicine Sep 5, 2002; 347:716-25