

**WILDERNESS MEDICINE NEWSLETTER**  
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For the recognition, treatment and prevention  
of wilderness medical problems.

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**HEAT AND THE UNHAPPY HUMAN**

She was twenty-nine years old and it was her first hike in the desert southwest. Descending from the dry canyon rim where breezes stirred the red sand, she and her friends entered the more humid and still world of the narrow river valley. She was lean and fit. The group moved quickly. Probably the wonder of the strange surroundings made her forget the water in her bottle. The fierce way the desert sucks the moisture from your body was new to her. On the second afternoon, it seemed to her friends she was getting "too much sun". Her skin was reddish, but it could have been sunburn. She complained of loss of sleep the next morning, and lagged behind on the trail. She acted disoriented, and became irritated when it was suggested the party stop early the third afternoon. When it was evident something was really wrong, the group started back toward the parking lot. She collapsed early that evening, and one of her companions hurried out for help. Before the rescue helicopter arrived, she was dead.

"A fine line separates heat exhaustion from heat stroke," says Dr. Murray Hamlet of the U. S. Army Research Institute for Environmental Medicine. "I would prefer people think of it as a continuum:

98.6 - 103 F = Mild...103 - 106 F = Moderate....106 + = Severe."

Exhaustion, as the name implies, is more common in the less fit and less acclimatized to heat. There may be little rise in the body's core temperature, but loss of water and salt makes the patient complain of fatigue, headache, dizziness, shortness of breath, and nausea. They will probably look pale and sweaty.

As the core temperature rises, the patient will become confused and weak. They will begin to appear red and feel hot to the touch.

Stroke is most likely in the sick and elderly whose thermoregulatory systems are inefficient, and the fit who push themselves too hard. They are red and hot, and sometimes dry to the touch. Bizarre activity follows mental confusion as the brain begins to cook. Loss of consciousness and convulsions

will result if the victim goes untreated.

Heat injured patients need rest in a cool, shady place with their clothing opened or removed. If they can drink, give them all the cold water they can hold. It should be sipped. Dissolving a half teaspoon of salt or a salt tablet in the water helps. Wet them and fan them to artificially create sweating. If they are severely heat injured, the cooling process must be aggressive and constant in order to save their life. Cooling should be concentrated on their head and neck if water is in short supply. Massaging the extremities will aid in returning the cooler blood on the surface to their body's core. The severely hot are in dire need of the nearest medical facility.

"The Israeli army has eliminated heat injuries," says Dr. Hamlet. "They drink 11 - 18 liters of water per man per day." In most of the American wilderness, one liter in the morning and more water every hour should prevent most heat problems. To be safe, drink 4 - 6 liters of fluid every day. Alcohol and caffeinated drinks don't count. Take frequent rest breaks. A healthy diet provides adequate salt. Shade your head conscious head and do not wear clothing that traps body heat.

But the key is staying hydrated! "You can't overhydrate," says Dr. Hamlet. "One liter of water to a dehydrated victim is like peeing in their ear!"

buck tilton

#### THE CASE AGAINST KOFLACH

She lost several toes in her attempt to climb Denali, but she will probably lose her case against Koflach as well. Koflach, and other boot makers, use a closed-cell foam inner boot for maximum warmth. The foam expands at high altitude, reaching a consistent 23 percent enlargement at 18000 feet. Manufacturers know this, but sometimes salespeople don't. The fault seems to lie with whoever sold her the boots. The answer is to buy your high altitude boots larger than normal, and take off socks as the closed-cell liner swells. Your feet will stay warm because the liner's ability to insulate increases as its size increases.

#### NEW WILDERNESS FIRST AID MAGAZINE

The first issue of new quarterly magazine is due off the press in September, 1988. It promises to be "for people who are serious about health and safety in outdoor activities". For subscriptions (\$12.00/year) and/or more info, write: WILDERNESS FIRST AID, Steve Donelan, Editor, P. O. Box 1227, Berkeley, CA 94701.

### MAXIMS AND MYTHS

**MYTH: NEVER LET A HEAD INJURED PERSON GO TO SLEEP!**

**FACT:** Oftentimes in remote backcountry situations the best thing we can do for a head injury is let them sleep.

Recall that the major complication of a head injury is increasing intracranial pressure (ICP). The rigid, unforgiving bony container which protects our brain from the outside world is just that - rigid and unforgiving. When a blow to our head causes vaso-dilation, bleeding, and/or swelling, the cranium is unwilling to expand outwards, so unfortunately, our brain compresses inwards.

State-of-the-art treatment for increasing ICP includes oxygen therapy, drug therapy, and ultimately drilling a hole in the skull to let the pressure off, if necessary.

The reasoning behind not letting somebody sleep (or at least arousing them regularly) in a short-term or hospital setting is that we have these therapies available. If we detect a decreasing level of consciousness (LOC) due to brain swelling there is something that can be done. So we keep this person awake and monitor that all-important LOC.

In the backcountry, particularly in the truly long-term situation (24 + hours), there is very little that we can do to relieve this increasing pressure. The data regarding increasing ICP shows us that these injuries tend to stabilize, or self-limit, after 24 hours. If the person is still alive a day later, they have a strong chance of surviving.

The ideal treatment for a backcountry head injury is to get them to a hospital as quickly and gently as possible. In situations where that just can't happen within 24 hours, your best bet is to bed them down, elevate the head and shoulders, watch the airway, and let them sleep it off. Walking or roughly carrying a badly head injured person towards a roadhead that is 24 or more hours away is statistically not in their favor. Sleep, rest, and a little help from above offer their best prospects.

(For more info on Head Injuries, see Wilderness Medicine Newsletter # 1, May, 1988.)

bobby dery

## KNOW THYSELF (PART 2)

### Factors affecting mental awareness:

1. **SELF-CONCEPT.** We all know that our self-concept has a tremendous impact on our daily lives and hence, our potential. It provides us with assumed limitations. Remember, self-concepts are arbitrary! If you surrender to them, a phenomenon known as the Self-Fulfilling Prophecy occurs. Your past becomes your future. If you choose to ignore it, your self-concept will manifest itself in subtle ways, undermining you at every turn. If you resist it, you are wasting time and energy. So, what do you do with it? Use it! Change your act. Eliminate the word "can't" from your vocabulary so that it will lose its power over your life. Remember the only limits you have are self imposed. Change - practice - persist.

2. **FEAR OF FAILURE.** Fear is an ogre that raises its ugly head in the form of a vicious circle for many of us. Millman brilliantly describes fear of failure thusly: Fear produces tensions. Tension constricts blood flow, slows the reflexes, produces shallow breathing, results in general contractions of opposing muscle groups. The result? Obstruction of effective movement terminating in probable failure. Learn to use failure so that it ceases to distract you. Appreciate failure, laugh at it. A balance of failure and success is natural. Some of the greatest minds in our country have failed miserably in their various attempts for success. Practice failing. Surprisingly, you will find that the world will not come to an end. Get your ego out of the way. Eventually, you will improve by accident.

3. **HYPERMOTIVATION.** All this involves is the ability to focus and concentrate. Learn to keep your mind free from sources of internal distraction. This will lead to increased power and potential. It's similar to hand-eye coordination. You know - "keep your eye on the ball". Replace the word "eye" with "mind" and you'll have it.

4. **DESTRUCTIVE SELF-CRITICISM.** Don't fight yourself. Be constructive. Self-criticism is learned. It usually starts in childhood. Kids are often the target of destructive criticism. As a result, a lot becomes internalized, and then we start in on ourselves. It is a subtle sort of thing. You become impatient, frustrated, or depressed as a result. Be gentle with yourself. Develop an attitude of unconditional self-worth. Treat yourself with the same courtesy that you would another human being. You wouldn't call them a slug. Why lay that on yourself?

None of these changes will occur in ten easy steps. It will take time and effort on your part, and it will be a difficult road to travel. But it's good to know that you will be able to get to the end of this road without paying a toll.

To encapsulate all that I have said, bask in the wisdom of Shunryu Suzuki: "When you do something, if you fix your mind on the activity with some confidence, the quality of your state of mind is the activity itself. When you are concentrated on the quality of your being, you are prepared for the activity."

theresa grogan

### WILDERNESS DRUGSTORE

The most recent addition to the over-the-counter, non-prescription pain killers - ibuprofen - is well worth considering as an addition to your backcountry first aid kit.

Ibuprofen may be better known to you by brand names such as Advil or Nuprin. For years ibuprofen's predominant use was in the prescription drug Motrin for the relief of menstrual cramps. In 1984 low dose versions (200 mg) were approved for over-the-counter sale.

Ibuprofen has analgesic properties very similar to those of aspirin and acetaminophen (Tylenol), and has shown itself to be superior to both of them for relieving the pain of sprains, strains, and mild to moderate frostbite. It is a fever-reducer as well as a highly effective anti-inflammatory agent.

Ibuprofen is a gastric irritant (like aspirin), and the Food and Drug Administration warns that people who have bad reactions to aspirin (about one in 100) may also be sensitive to ibuprofen, even though it contains no aspirin.

We feel that ibuprofen gives us the best of all worlds - analgesia, fever reduction, anti-inflammation - and is also so effective against musculo-skeletal aches and pains, which are very common in the backcountry, that we never leave home without it.

bobby dery, the outdoor pharmacologist

### COMMON SIMPLE PROBLEMS: HEAT CRAMPS

Although you may have trouble convincing your patient, heat cramps are not physiologically damaging. But they do hurt! The victim complains of a terrible charley-horse, usually in their lower leg, upper leg, and/or abdomen. They'll probably moan a lot and clutch the painful area.

It is a hot day, and you have been walking hard. The less acclimatized victim has been sweating heavily, and possibly replacing the water he is losing, but not replacing the salts. When the salt-depleted muscle screams, you have a heat cramp.

They should be relaxed in the shade. Massage the hurting muscles, stretching them out to relieve the cramp. Give them

salty water to drink (about one-half teaspoon of salt per quart). Or feed them salty foods, as long as they are not nauseous. After a half hour they should feel better than before the incident.

buck tilton

### TEN TIPS FOR SOMETHING TO DO WITH FOOD

1. The average American diet is 40-50% fat, 10-15% protein, and the rest carbohydrate. For the most energy and the longest life, on and off the trail, shoot for 15-20% fat, 10-12% protein and the rest carbohydrate.
2. When packing for a backcountry trip, the food you decide to bring along should be specific to the environment in which you will be adventuring and the mode of travel you will be using. I wouldn't carry the same ration for a winter climb of Denali as I would for a summer canoe trip in the Boundary Waters.
3. The diet should be specific to your individual requirements. No two people are satisfied with the same ration. I survive quite contently at 1 and 1/2 pounds of food per day in almost all situations, while associates of mine are lean and very mean with a beefy ration of over 2 pounds per day.
4. Go for high nutritional value to weight ratio. None of us are getting any younger and who needs dead weight on their back.
5. Make sure you're getting enough complete protein, ie. legumes and grains, powdered milk, cheese.
6. Focus fat around the mono-unsaturated variety, ie. olive oil, peanut butter, many kinds of nuts.
7. At altitude, bring an assortment of foods and make sure some are spicy. As altitude increases, lower your fat intake and eat more carbohydrates.
8. Keep snackies handy. They don't do you any good if you're too bothered to dig them out of the bottom of your pack.
9. In the cold, at altitude, or on any trip where you plan to be whipped by day's end, take food that is quick, easy, and prepackaged by meal.
10. When packing for altitude FORGET EVERYTHING you read above and pack all your decadently favorite food items. Then force yourself to eat every crumb, followed and preceded by floods of water.

**IMPORTANT NOTE: IF YOU TRIED THE SOLO BAR RECIPE IN JUNE'S ISSUE, YOU MAY HAVE NOTICED IT FLOPPED. TRY AGAIN AND ADD 9 CUPS OF OATMEAL AS THE FINAL INGREDIENT. THE NUTRITIONAL**

BREAKDOWN OF A BAR BY CALORIES IS 10% PROTEIN, 50% CARBOS, AND 40% FAT. TAKE THAT INTO CONSIDERATION WHEN PLANNING YOUR RATION OR TRYING TO FULFILL TIP NUMBER 10.

melissa gray

**WILDERNESS MEDICINE STANDARDS?:  
THE ASTM MEETING IN BALTIMORE**

Storm clouds collected outside and inside the Stouffer Harborplace Hotel in Baltimore, Maryland last May. Ask a group of doctors and EMT's and concerned citizens to come with a set of standards for the nation and you'll see what I mean. Getting the consensus required by the ASTM may well be impossible. But, as a participant, I have seen the value of the process. Standards are important because they provide a considered opinion about what will work adequately in a given situation. One is always free to choose not to meet the standards.

The Committee did come with recommendations concerning the field treatment training standards for hypothermia, frostbite, altitude sickness, wound management, musculoskeletal injuries, anaphylaxis, and Basic Life Support. As soon as they are published, we will make the information available to you, our readers.

buck tilton

**WORTH REPEATING:** "All wilderness problems fall into two categories: trying to please others and trying to keep a schedule."

jed williamson

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