NAVAL ACADEMY PREPARATORY SCHOOL INSTRUCTION 6110.1A

From: Commanding Officer, Naval Academy Preparatory School

Subj: POLICIES AND PROCEDURES GOVERNING PHYSICAL FITNESS TRAINING IN HOT AND COLD WEATHER

Ref: (a) OPNAVINST 6110.1J
     (b) OTCNINST 6110.3A
     (b) NAVMED P-5010-3 (Rev. 2-2009)

Encl: (1) Duration of Physical Exercise Periods for PT/RPT During Heat Conditions I-IV
      (2) Essential Information Regarding Prevention Heat and Cold Stress Injuries
      (3) Heat Stress Flag System
      (4) National Weather Service Wind Chill Chart
      (5) Wind Chill Condition Flags

1. Purpose. To establish the policy and procedures of physical training during hot and cold weather training per references (a) and (b).

2. Cancellation. NAPSINST 6110.1.

3. Discussion. As heat and chill conditions progress, cumulative restrictions are placed on training. Violation of restrictions may result in heat or cold induced casualties.

4. Hot Weather Conditions

   a. Acclimation:

      (1) Training programs for physically deficient students or those who require extra time for acclimation should be limited in intensity and time. A "breaking-in" period of one to two weeks with progressive degrees of physical exertion and heat exposure is usually sufficient to acclimate to exercising in a hot weather environment.
Although acclimation increases tolerance for heat, it offers no immunity to heat illness. Over exertion can lead to injury even in mild weather. Water loss of two percent or more of body weight (1.5 quarts for average 160-pound student) is physically detrimental and may present a health risk.

b. Heat Conditions, temperature ranges and personal restrictions:

(1) Using enclosures (1) through (3) as guidance, training programs in warm weather shall be planned on the basis of the Wet Bulb-Globe Temperature (WBGT) Index. This index combines shade air temperature, radiation, humidity, and wind into a single value.

(2) Heat Condition One shall be set when the WBGT is between 80.0°F - 84.9°F. A green flag is flown to indicate this condition. Student fluid intake must be at least one water bottle every 1-2 hours.

(3) Heat Condition Two is set when the WBGT is between 85.0°F - 87.9°F. A yellow flag is flown to indicate this condition. Student outdoor activity and military drill shall be limited to 30-minutes duration, with at least one 10-minute period of reduced activity between drill periods. Rest periods shall be provided in shaded or covered areas. Fluid intake must be at least one water bottle every 1-2 hours.

(4) Heat Condition Three is set when the WBGT is between 88.0°F - 89.9°F. A red flag is flown to indicate this condition. Student outdoor activity and military drill shall be limited to 30-minutes duration, with at least one 10-minute period of reduced activity between drill periods. Rest periods shall be provided in shaded or covered areas. Senior Enlisted Leader’s (SEL’s), Battalion Drill Instructor (BDI) and Company Officers must ensure student’s fluid intake is at least one water bottle per hour.

(5) Heat Condition Four is set when the WBGT equals or exceeds 90.0°F. A black flag is flown to indicate this condition. All outdoor strenuous activity will be secured and an at-ease march will be in effect. SEL’s, BDI and Company Officers must ensure student’s fluid intake is at least one water bottle per hour.

(6) Activities permitted under all flag conditions:
(a) Administrative and medical processing.

(b) Indoor classes.

(c) Swim qualification.

(d) Indoor Physical Training in climate controlled facility.

c. Liquid Intake:

(1) Fluid intake must be sufficient to replace fluid loss due to perspiration. During drill, physical training periods, periods of excessive marching and other physical activity in hot weather, students should be allowed and encouraged to drink a minimum of three water bottles but no more than twelve a day to include no more than 1.5 water bottles per hour.

(2) Specific counseling shall be provided to students on the need to drink adequate fluids. The appropriate liquids to drink are water, fruit juices, and sports drinks. Excessive amounts of coffee, soda and milk are to be avoided.

d. Rest and Sleep:

(1) Class schedules shall allow for at least 30 Minutes of rest after meals before conducting PT.

(2) Barracks rooms will be equipped with window screens for insect control and ventilation.

e. Clothing. Clothing and equipment shall be worn in such a way to provide maximum skin ventilation without unnecessary skin exposure to bright sunlight.

5. Cold Weather Conditions. The combined effect of wind speed and temperature, known as “wind chill,” can produce a significant chilling effect on exposed flesh. Air movement generated by walking, running, or riding in open vehicles creates the same wind chill condition as produced by wind alone. To determine equivalent wind chill temperatures using enclosure (4), add the speed of movement to the wind speed. Using enclosure (5), the Chill Conditions, temperature ranges and personal restrictions are as follows:
a. Chill Condition One is set when the wind chill is 40.0°F - 20.1°F. A green flag is flown to indicate this condition. Students shall be kept comfortable with adequate clothing.

b. Chill Condition Two is set when the wind chill is between 20.0°F - -40.0°F. A yellow flag is flown to indicate this condition. Heavy clothing is required and frostbite to exposed skin is possible. When set, all restrictions for Chill Condition One and items (1) through (3) below apply.

   (1) Outdoor drill, PT, and sports practice is secured.

   (2) All outdoor activities promoting accelerated breathing are secured at the Commanding Officer’s discretion.

   (3) Students will not stand outside longer than five minutes. Formation may be done on line at the CDO discretion.

c. Chill Condition Three is set when wind chill is between -40.1°F - -60.0°F. A red flag is flown to indicate this condition. Exposure to the weather should occur only when necessary. Frostbite to exposed skin is likely.

d. Chill Condition Four is set when wind chill is below -60.0°F. A black flag is flown to indicate this condition. Frostbite to exposed skin is likely. All restrictions for Chill Conditions One, Two, Three and items (1) and (2) below apply.

   (1) Outdoor activities will be suspended as directed by the Commanding Officer, Command Duty Officer (CDO) or the competent authority.

   (2) Secure Physical Training.

e. During Chill Conditions One thru Three, snow removal details will be split into two sections. Each section will rotate as required not to exceed the maximum single exposure times listed below.

<table>
<thead>
<tr>
<th>Chill Condition</th>
<th>Rotation time</th>
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<tbody>
<tr>
<td>One</td>
<td>30-Minutes</td>
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<tr>
<td>Two</td>
<td>15-Minutes</td>
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<tr>
<td>Three</td>
<td>5-Minutes</td>
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</tbody>
</table>

f. During Chill Condition Four, all snow removal efforts will cease except for designated snow team personnel operating in enclosed cab tractors or trucks.
6. Responsibilities. NAPS staff are responsible for enforcing the restrictions established by this instruction and ensuring all cases of heat stress/suspected frostbite receive immediate medical treatment. The following specific responsibilities are assigned in response to heat/chill conditions:

a. CDO:

   (1) Will notify the Commanding Officer of any unexpected or drastic changes in Heat/Chill Conditions.

   (2) Will make appropriate log entries.

   (3) Will inform the Commanding Officer when Chill Conditions change and affect the suspension of all outside activities.

b. Company Staff, will stay informed of Heat/Chill Conditions in effect and ensure required actions are enforced.

7. Review. The Safety Officer will review this instruction annually, recommending changes as necessary.

M. D. DOHERTY
# DURATION OF PHYSICAL EXERCISE PERIODS FOR PT/RPT DURING HEAT CONDITIONS ONE THROUGH FOUR

<table>
<thead>
<tr>
<th>Heat Condition</th>
<th>Exercise</th>
<th>Rest</th>
<th>Exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td>One</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Two</td>
<td>30-minutes</td>
<td>10-minutes</td>
<td>30-minutes</td>
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<tr>
<td>Three</td>
<td>30-minutes</td>
<td>10-minutes in shade</td>
<td>30-minutes</td>
</tr>
<tr>
<td>Four</td>
<td>Secured</td>
<td>Secured</td>
<td>Secured</td>
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Enclosure (1)
ESSENTIAL INFORMATION REGARDING PREVENTION AND FIRST AID OF HEAT CASUALTIES

1. Body Heat and the Environment

   a. The human body uses energy in its vital processes and while doing work. This energy becomes heat, which at ordinary temperatures, is transferred from the body to the environment. When the environment becomes as warm as the skin, the process is reversed and the body begins to gain heat.

   b. When the body cannot lose heat to the surrounding environment, it begins sweating. As sweat evaporates (transferring heat from the body to the surrounding air), the body is cooled and a normal body temperature is maintained.

   c. Sweating causes loss of body fluids and salt. This loss upsets the heat regulating mechanisms of the body. Lack of proper heat regulation in the body may lead to the individual becoming a heat casualty.

2. Types, Causes, Symptoms and First Aid

   a. There are three basic types of heat casualties: heat cramps/syncope; heat exhaustion; and heat stroke. Heat stroke is the most serious of the heat conditions and unless promptly treated, may result in death or permanent brain damage. Heat stroke is a true medical emergency.

   b. Heat cramps may occur as an isolated condition with normal body temperature or along with heat exhaustion. Heat cramps may occur in a small area of the body or involve a large area when major muscle groups have been stressed. Most frequently involved are muscles of the arms, legs and abdomen. The treatment of heat cramps follows that of heat exhaustion.

   c. Though not as serious at heat exhaustion or heat stroke, heat syncope can be very dangerous. The symptoms for heat syncope are: temperature below 101°F, individual is dizzy, feels faint and has no cramps. If these symptoms are noted, send for medical aid.

   d. The symptoms of the two most serious conditions, heat exhaustion and heat stroke, are different and easy to recognize. The major differences are in the condition of the skin. In heat exhaustion, the skin is sweaty, cool and pale. In heat stroke, the skin is usually dry, hot and flushed.
e. Set forth below are types, causes, symptoms and first aid treatment of the two most serious types of heat casualties.

(1) Heat Exhaustion

(a) Causes. This illness is cause by exposure to high temperatures and humidity. Solar heat, prolonged or strenuous activity by un-acclimated personnel, and the wearing of excessive or restrictive clothing are all contributory factors in the development of heat exhaustion.

(b) Symptoms. Shortness of breath, feeling ill, headache, weakness, dizziness, blurred vision, nausea and muscle cramps may occur. After onset, the Casualty will generally have pale, cool and wet skin.

(c) First Aid:

1. Send for medical aid.

2. Place Casualty in a cool, shady place with circulating air.

3. Lay Casualty down with head level, equal to or lower than feet.

4. Loosen clothing or remove if appropriate.

5. If Casualty is conscious, give liberal quantities of water in small sips.

6. Use ice if available to cool Casualty down. Place ice in arm pits, groin area, and back of neck.

(2) Heat Stroke

(a) Cause. Heat stroke develops from heat exhaustion compounded by the body’s inability to sweat. The cessation of sweating closes the temperature outlet for the body.

(b) Symptoms. Lack of sweating, weakness, headache, dizziness, loss of appetite, nausea, shortness of breath, faintness or even collapse may occur. Onset is sudden and will be recognized by convulsion, delirium or loss of consciousness. The skin will be flushed, hot and dry. Death/brain damage may occur if body temperature is not lowered immediately.
(c) First Aid:
1. Send for medical aid.
2. The primary concern is to lower body temperature as quickly as possible.
3. Move Casualty to a cool, shady place with circulating air. Do not attempt to make the Casualty drink.
4. Loosen clothing.
5. Apply cool water or ice water to entire body. Be careful to avoid nose and mouth.
6. Fan Casualty constantly to promote cooling of the body by evaporation of applied water.

3. Prevention. Follow these rules to avoid heat exhaustion and heat stroke during hot weather.

a. The human body contains a great deal of water and considerable salt. Sweating causes the body to lose these items, and they must be replaced. The body cannot be "weaned" away from water or trained to do without salt. Encourage personnel to drink water frequently and drink as much as they need. Infrequent large intakes may lead to stomach distention, vomiting or cardiac problems. Need may range from two quarts to seven quarts a day in a normal situation in hot weather, but may increase to 13 quarts a day when performing heavy work in hot weather. In fact, the need for water may exceed the desire. Ideally, personnel should drink until their urine becomes clear or a very pale yellow.

b. Personnel should wear hats in the sun and remember that light, loose clothing will actually deflect the sun’s heat.

c. A person who gets sick or dizzy in hot weather should rest.

d. If sweating stops - GET PROMPT MEDICAL AID.
<table>
<thead>
<tr>
<th>HEAT CONDITION</th>
<th>WBGT INDEX</th>
<th>FLAG</th>
<th>ACTIONS REQUIRED</th>
</tr>
</thead>
</table>
| ONE            | 80.0°-84.9°| GREEN | Protect from sunburn  
- >1 Water Bottle/1-2 Hours  
- Outdoor Drill/PT: 30 min. w/15 min. break |
| TWO            | 85.0°-87.9°| YELLOW| Protect from sunburn  
- >1 Water Bottle/1-2 Hours  
- Outdoor Drill/PT: <30 min. w/>20 min. break |
| THREE          | 88.0°-89.9°| RED   | Protect from sunburn  
- DRILL/PT: Secured  
- Member of Company Staff must march with the company.  
- >1 Water Bottle/ Hour |
| FOUR           | 90.0° and over | BLACK | Protect from sunburn  
- Drill/PT: Secured  
- Member of Company Staff must march with the company.  
- >1 Water Bottle/ Hour  
- All Companies "At Ease, MARCH" |

- When transitioning from one heat condition to a more restrictive heat condition, implement all actions required from previous heat conditions.
- Minimum of 3 water bottles/maximum 12 water bottles and no more than 1.5 water bottles per hour.
### NWS Windchill Chart

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</tbody>
</table>

**Wind Chill (°F) = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275V^{0.16}**

Where, T = Air Temperature (°F)  V = Wind Speed (mph)  

Effective 11/01/01
### WIND CHILL CONDITION FLAGS

<table>
<thead>
<tr>
<th>Chill Condition</th>
<th>WIND CHILL</th>
<th>FLAG</th>
<th>ACTIONS REQUIRED</th>
</tr>
</thead>
<tbody>
<tr>
<td>ONE</td>
<td>40.0° to 20.1°</td>
<td>GREEN</td>
<td>- Use of adequate clothing for cold weather.</td>
</tr>
<tr>
<td>TWO</td>
<td>20.0° TO -40.0°</td>
<td>YELLOW</td>
<td>- Outdoor Drill/PT: Secured</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- All outdoor staging/standing less than 5 minutes</td>
</tr>
<tr>
<td>THREE</td>
<td>-40.1° to -60.0°</td>
<td>RED</td>
<td>- Indoor physical activities.</td>
</tr>
<tr>
<td>FOUR</td>
<td>Below -60.0°</td>
<td>BLACK</td>
<td>- All outdoor activities suspended by CDO.</td>
</tr>
</tbody>
</table>