**ACADEMY HEAT POLICY, GUIDELINES, AND PROCEDURES**

# INTRODUCTION

Operations involving high air temperatures, radiant heat sources, high humidity, direct physical contact with hot objects, wearing of minimally-breathable fabric and/or strenuous physical activities have a high potential for inducing heat stress in fire recruits engaged in physically demanding work.

**PURPOSE**

To ensure that the safe working conditions of academy recruits do not deteriorate to a point that affects the safety of each member, or jeopardizes the safety and integrity of the operation. This procedure shall apply to all recruit-training exercises where physical activity and exposure to heat exists.

# PROCEDURE

Systems for measuring heat stress are many; however NIOSH and OSHA recommendations for work schedule are determined by metabolic work rate, clothing, and the Wet Bulb Globe Temperature Index (WBGT). The WBGT is an empirical index that uses a formula combining natural wet bulb temperature, globe temperature, and dry bulb temperature to provide an assessment of environmental heat stress. Every Instructor no matter what rank is to be aware of this policy and monitor the weather and students. All instructors are also responsible for taking the appropriate actions to prevent students from heat stress injuries.

**Permissible Heat Exposure Threshold Limit Values in oF (WBGT)**

*Work level and recommended water intakes*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| WBGT  Index oF | **EASY**  (Work/Rest mins) | Water Intake  (oz per hour) | **MODERATE**  (Work/Rest  mins) | Water Intake  (oz per hour) | **HARD**  (Work/Rest  mins) | Water Intake  (oz per hour) |
| < 78 | NL | N/A | NL | N/A | 50/10 | N/A |
| 78-81.9 | NL | 16 | NL | 24 | 40/20 | 24 |
| 82-84.9 | NL | 16 | 50/10 | 24 | 30/30 | 32 |
| 85-87.9 | NL | 24 | 40/20 | 24 | 30/30 | 32 |
| 88-89.9 | NL | 24 | 30/30 | 24 | 20/40 | 32 |
| >90 | 50/10 | 32 | 20/40 | 32 | 10/50 | 32 |

NL-No Limit

N/A- Not Applicable

* The work/rest time and fluid replacement volumes will sustain performance and hydration for at least 4 hours of work in the specified heat category. Individual water needs will vary ± ¼ qt/hr.
* Rest means minimal physical activity (sitting or standing) and should be accomplished in shade with PPE removed.
* **CAUTION**: Hourly fluid intake should not exceed 1 ½ quarts.
* Daily fluid intake should not exceed 12 quarts.

**Wearing full protective clothing without SCBA adds 3o to the WBGT**

## Firefighter Levels of Work Associated with WBGT Index

|  |  |  |
| --- | --- | --- |
| Easy Work | Moderate Work | Heavy Work |
| * Equipment maintenance * Inspection on drill ground * Ropes and knots * Pump operations * Washing apparatus * Walking on hard surface at   2.5 mph, < 30 lbs. of load | * Ladder raise, extension, climb * Hose line advancement * Walking on hard surface at 3.5 mph, > 40 lbs. load * 1.5 mile run on hard surface at 11:00 m/mile | * Combat Challenge * Burn building fire extinguishment * Walking on hard surface at 3.5 mph with > 40 lbs. load * 3.0 mile run on hard surface at 9:30/mile |

**Easy work** = 3.5 kcal/min **Moderate work** = 5.0 kcal/min **Heavy work** = 7.0 kcal/min

|  |  |
| --- | --- |
| **PHYSICAL INDICATORS OF DEHYDRATION** | |
| Skin | * Less elastic * On pinch test, the skin regains its shape slowly |
| Urine | * Reduced in volume and frequency * Concentrated and darker |
| Sweat | * Higher sweat rate * If sweat production suddenly stops despite continued heat exposure, dehydration has reached a severe level |
| Physical Work Capacity | * Reduced endurance * Accelerated onset of fatigue |
| Heart Rate | * Faster heart rate * Work seems increasingly more tiring and increases the heart rate rapidly |
| Appetite | * Suppressed appetite * Food intake is reduced during water deprivation, and water intake reduced during starvation |
| Mental Indicators | * Less Alert * Increased lethargy * Difficulty in concentrating * Confusion * Irrational behavior |

Cal-OSHA Heat Illness Prevention: <http://www.dir.ca.gov/title8/3395.html>

**\*PLEASE SEE APPENDIX E FOR THE WBGT LOG**

**APPENDIX D**

**Sierra College Regional Fire Academy**

**WBGT LOG**

Date:

|  |  |  |  |
| --- | --- | --- | --- |
| TIME | WBGT | STRUCTURE PPE  CORRECTION  ADD 3o | ACTION TAKEN |
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