

## HEAT INJURY MANAGEMENT

### HEAT INJURIES ARE PREVENTABLE

THE ARMY'S HEAT INJURY MANAGEMENT POLICY, AND ITS APPLICATION TO AUSTRALIAN ARMY CADETS, IS DESIGNED TO MINIMISE THE OCCURRENCE OF HEAT INJURY THROUGH ADEQUATE CONTROL MEASURES AND HENCE REDUCE THE RISK TO CADETS AND STAFF  
MORE IMPORTANTLY, IT ALSO ENABLES ADF STAFF, ACS AND CADETS TO RECOGNISE AND TREAT HEAT ILLNESS TO PREVENT SERIOUS INJURY OR FATALITY

#### DEFINITIONS

EMERGENCY COOLING: METHOD OF EMERGENCY COOLING FOR A HEAT CASUALTY DEPENDANT ON THE SEVERITY OF THE HEAT INJURY, INCLUDES:

- IMMEDIATE FIRST AID: STRIP CLOTHING, WET SKIN AND FAN, PLACE IN THE SHADE
- DRINK COOL OR CHILLED WATER
- USE OF LAGRE FANS PREFERABLY WITH WATER MISTING
- PLACE IN AIR CONDITIONED LOCATION
- IMMERSE IN COOL OR CHILLED WATER (OR ICE & WATER)
- INTRAVENOUS FLUIDS

HEAT INJURIES: THE TERM APPLIES TO INJURIES CAUSED BY EXPOSURE TO ENVIRONMENTAL HEAT. THE FOUR TYPES OF HEAT INJURY ARE:

- DEHYDRATION
- OVER HYDRATION
- HEAT EXHAUSTION
- HEAT STROKE

## HEAT INJURY MANAGEMENT

### RESPONSIBILITIES

OIC OF ACTIVITY: TO ENSURE ALL POLICIES, DIRECTIVES AND INSTRUCTIONS ARE INCLUDED/IMPLEMENTED IN THEIR ACTIVITY SAFETY RISK MANAGEMENT PLAN (SRM)

SAFETY OFFICERS: TO ENSURE THAT SRM ACTUALLY OCCURS ON THE GROUND, AND IF NOT TO STOP THE "TASK" OR ACTIVITY

ADF OR ACS: TO ENSURE DUTY OF CARE FOR CADETS IS MET AND WHEN IN DOUBT STOP CADETS FROM PARTICIPATING (STOP THE "TASK" OR ACTIVITY)

CADETS: TO ENSURE THAT THEY ALERT STAFF IMMEDIATELY OF ANY INCREASED RISK FACTORS OR SYMPTOMS FOR HEAT ILLNESS, FOR BOTH SELF AND MATES. ALSO RESPONSIBLE FOR TAKING PERSONAL PRECAUTIONS TO SAFEGUARD OWN HEALTH AND SAFETY IN ACCORDANCE WITH DIRECTIONS !!

## HEAT INJURY MANAGEMENT

### RISK FACTORS

#### ACCLIMATISATION:

- CLIMATE WHERE THE ACTIVITY IS BEING CONDUCTED – IS THIS DIFFERENT TO THE NORM?
- PHYSICAL ACTIVITY AND HOW SLOWLY IT IS INTRODUCED?

#### ENVIRONMENTAL FACTORS:

- INCLUDES HUMIDITY, TEMPERATURE, WIND, AND EXPOSURE TO SUN
- EXPOSURE TO THESE FACTORS OVER DAYS (ADDS UP)
- UNEXPECTED CHANGES TO CONDITIONS (BECOMES HOT SUDDENLY)

#### PERSONAL FACTORS:

- ACTIVITY LEVEL: TYPE OF ACTIVITY, LENGTH OF ACTIVITY, AMOUNT OF REST/WORK
- CLOTHING: BODY HEAT IS LOST THROUGH SKIN – THEREFORE AMOUNT AND TYPE OF CLOTHING WILL REGULATE HEAT LOSS
- HUMAN FACTORS: VARIOUS INCLUDING AGE, WEIGHT, BMI, PHYSICAL FITNESS, AMOUNT OF FOOD AND WATER CONSUMED, SALT REPLACEMENT, SOME MEDICATIONS

### LACK OF KNOWLEDGE!

## HEAT INJURY MANAGEMENT

### DEHYDRATION

#### CAUSE:

- AN EXCESSIVE LOSS OF WATER FROM THE BODY
- ALSO INVOLVES THE LOSS OF IMPORTANT ELEMENTS SUCH AS POTASSIUM (K+) AND SODIUM (NA+)
- VITAL ORGANS LIKE THE KIDNEYS, BRAIN AND HEART CANNOT FUNCTION WITHOUT A MINIMUM AMOUNT OF WATER AND SALT

#### SIGNS AND SYMPTOMS:

- SKIN – LESS ELASTIC
- URINE – REDUCED VOLUME AND CONCENTRATED (COLOUR)
- SWEAT – HIGHER RATE
- PHYSICAL CAPACITY – REDUCED ENDURANCE, ACCELERATED ONSET OF FATIGUE
- HEART RATE – FASTER, WORK SEEMS MORE TIRING
- APPETITE – SUPPRESSED
- MENTAL INDICATORS – LESS ALERT, INCREASED LETHARGY, DIFFICULTY CONCENTRATING AND CONFUSED / IRRATIONAL

#### TREATMENT:

- WATER – INCREASE CONSUMPTION
- REST WELL IN SHADE TO COOL DOWN
- LOOSEN CLOTHING (SINGLE LAYER)
- AVOID PHYSICAL EXERTION UNTIL RE-HYDRATED
- REPORT TO STAFF THROUGH CHAIN OF COMMAND

## HEAT INJURY MANAGEMENT

### OVER HYDRATION

#### CAUSE:

- POTENTIALLY FATAL
- MOST OFTEN OCCURS IN EXERCISE LASTING FOUR HOURS OR LONGER
- RESULT OF CONSUMING EXCESSIVE FLUIDS, MADE WORSE BY NOT REPLACING SODIUM LOSSES
- SEVERE CASES MAY INVOLVE SEIZURES, INCREASED INTRACRANIAL PRESSURE, FLUID IN THE LUNGS AND RESPIRATORY ARREST
- **OVER HYDRATION IS A MEDICAL EMERGENCY**

#### SIGNS AND SYMPTOMS:

- HEADACHE
- FATIGUE
- NAUSEA

SYMPTOMS ARE VERY SIMILAR TO THOSE FOR DEHYDRATION

#### TREATMENT:

### **MEDICAL EMERGENCY: EVACUATE TO MEDICAL FACILITY IMMEDIATELY**

#### PREVENTION:

- DRINK ELECTROLYTE DRINKS INSTEAD OF, OR IN ADDITION TO, WATER
- MONITOR YOUR URINE AND MAKE SURE YOU ARE URINATING AT REGULAR INTERVALS AND THAT THE URINE IS LIGHT YELLOW TO CLEAR. IF YOU ARE NOT URINATING OR YOUR URINE IS DARK IN COLOUR, YOU MAY BE DEHYDRATED.

## HEAT INJURY MANAGEMENT

- DRINK COOL WATER (1 LITRE) EVERY 30 MINUTES, WITH MAXIMUM 2 LITRES)
- IF NO IMPROVEMENT IN 30 MINUTES, EVACUATE FOR MEDICAL TREATMENT

### HEAT STROKE

#### CAUSE:

- MOST SERIOUS FORM OF HEAT INJURY
- PROLONGED EXPOSURE TO HIGH TEMPERATURES
- FAILURE OF BODY'S COOLING MECHANISM
- CORE BODY TEMPERATURE > 40 DEGREES CELSIUS
- **HEAT STROKE IS A MEDICAL EMERGENCY**

#### SIGNS AND SYMPTOMS:

- HEAT EXHAUSTION SYMPTOMS BUT MORE SEVERE
- ALTERED MENTAL STATUS: AGITATION, CONFUSION, DELIRIUM OR DISORIENTATION
- NAUSEA
- VOMITING
- ELEVATED CORE BODY TEMPERATURE – USUALLY > 40 DEGREES CELSIUS
- CAN PROGRESS TO LOSS OF CONSCIOUSNESS, COMA OR SEIZURES

## HEAT INJURY MANAGEMENT

### HEAT EXHAUSTION

#### CAUSE:

- MOST COMMON HEAT ILLNESS
- BODY FATIGUE AND STRAIN ON THE HEART DUE TO EXCESSIVE BLOOD FLOW TO THE SKIN TRYING TO COOL THE BODY DOWN
- DEHYDRATION
- INADEQUATE ACCLIMATISATION
- INADEQUATE PHYSICAL FITNESS FOR THE TASK

#### SIGNS AND SYMPTOMS:

- DIZZINESS
- FATIGUE, WEAKNESS
- HEADACHE
- NAUSEA
- UNSTEADY WALK
- RAPID PULSE
- SHORTNESS OF BREATH

#### TREATMENT:

- ACTIVE COOLING – USE BEST MEANS POSSIBLE
- MOVE TO SHADE
- LOOSEN CLOTHING
- LAY FLAT AND ELEVATE FEET
- SPRAY/POUR WATER ON PERSON AND FAN
- MONITOR WITH SAME STAFF MEMBER
- ASSESS MENTAL STATUS EVERY FEW MINUTES

## HEAT INJURY MANAGEMENT

### TREATMENT

### **MEDICAL EMERGENCY: EVACUATE TO MEDICAL FACILITY IMMEDIATELY**

- COOL AGGRESSIVELY
- MOVE TO SHADED AREA
- REMOVE **ALL** CLOTHING TO UNDERWEAR
- POUR WATER OVER THE BODY, ESPECIALLY THE HEAD
- FAN VIGOROUSLY
- ASSESS MENTAL STATUS EVERY 2 MINUTES (ASK PERSON/PLACE/TIME)
- DO NOT GIVE WATER IF UNCONSCIOUS
- CONTINUE COOLING DURING EVACUATION/TRANSPORT

## HEAT INJURY MANAGEMENT

### PREVENTION – INDIVIDUALS

- DRINK ENOUGH WATER TO REPLACE SWEAT
- REFILL WATER BOTTLES AT EVERY OPPORTUNITY
- REMIND YOUR MATES TO DRINK
- IF URINE IS DARK OR REDUCED, DRINK MORE WATER
- EAT REGULAR MEALS WHILE TRAINING IN HOT ENVIRONMENT
- EAT SALTY FOODS (TO REPLACE SALT LOSS)
- DON'T WEAR EXTRA CLOTHING ON HOT DAYS
- DON'T TAKE DIETARY SUPPLEMENTS
- ADVISE YOUR STAFF IF YOU ARE ON MEDICATION

### PREVENTION – COMMANDERS AND STAFF

- ALLOW FOR ACCLIMATISATION
- MONITOR WBGT
- KEEP CADETS IN SHADE WHERE POSSIBLE
- OBSERVE WORK/REST CYCLES
- IDENTIFY HIGH RISK INDIVIDUALS (FITNESS)
- MONITOR FOOD INTAKE OF CADETS
- TEACH EARLY RECOGNITION OF HEAT ILLNESS SYMPTOMS
- RECOGNISE CUMULATIVE EFFECT OF SEQUENTIAL HOT DAYS
- RE-EVALUATE TRAINING!

## HEAT INJURY MANAGEMENT

### CONCLUSION

IT IS A COMMANDERS RESPONSIBILITY TO IDENTIFY RISKS OF HEAT ILLNESS / INJURY AND TO ENSURE THAT ALL STEPS ARE TAKEN TO REDUCE OR MINIMISE THE RISK OF AN OCCURRENCE

IT IS A STAFF MEMBERS RESPONSIBILITY TO ENSURE THESE MEASURES ARE IMPLEMENTED

IT IS EVERYONES RESPONSIBILITY TO KNOW HOW TO IDENTIFY AND TREAT HEAT ILLNESS / INJURY

**IT IS MORALLY IRRESPONSIBLE AND LEGALLY NEGLIGENT TO DO OTHERWISE!**

## HEAT INJURY MANAGEMENT

### PERSONAL CONDITION

YOUR ABILITY TO SAFELY PARTICIPATE IN A FIELD ACTIVITY CAN BE GREATLY IMPACTED BY YOUR PERSONAL CONDITION AT THE TIME OF THE ACTIVITY.

### FACTORS TO CONSIDER:

- RECOVERING FROM OR SUFFERING FROM AN ILLNESS
- OVERSEAS TRAVEL WITHIN 48 HOURS OF THE ACTIVITY
- RECENT PARTICIPATION IN ANOTHER ENDURANCE EVENT
- FAST SHALLOW BREATHING
- BIG NIGHT OUT WITHIN THE WEEK OF THE ACTIVITY

### PREVENTION:

- AVOID LONG DISTANCE AIR TRAVEL WITHIN 48 HOURS OF THE ACTIVITY
- AVOID PARTICIPATING IN OTHER ENDURANCE EVENTS WITHIN 2 - 3 WEEKS OF THE ACTIVITY
- AVOID LATE NIGHTS IN THE WEEK PRIOR TO THE ACTIVITY

IF ANY OF THE ABOVE FACTORS APPLY OR JUST PRIOR TO THE ACTIVITY YOU FEEL LESS THAN 100% FOR ANY REASON, RECONSIDER YOUR PARTICIPATION IN THE ACTIVITY