ROYAL CANADIAN AIR CADETS

PROFICIENCY LEVEL ONE

INSTRUCTIONAL GUIDE

SECTION 12

EO C190.05 – IDENTIFY ENVIRONMENTAL INJURIES

Total Time: 30 min

PREPARATION

PRE-LESSON INSTRUCTIONS

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-801/PG-001, *Proficiency Level One Qualification Standard and Plan*, Chapter 4. Specific uses for said resources are identified throughout the instructional guide within the TP for which they are required.

Review the lesson content and become familiar with the material prior to delivering the lesson.

PRE-LESSON ASSIGNMENT

Nil.

APPROACH

An interactive lecture was chosen for this lesson to orient the cadets to environmental injuries and generate awareness of the subject.

INTRODUCTION

REVIEW

Nil.

OBJECTIVES

By the end of this lesson the cadet shall have identified environmental injuries.

IMPORTANCE

Being able to recognize environmental injuries gives cadets the confidence to help in an emergency that could occur any time while in a survival situation. Knowing the symptoms and basic treatments for environmental injuries will aid cadets in possibly preventing and detecting an injury earlier.

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Teaching point 1 **Explain how to recognize hiking injuries.**

Time: 5 min Method: Interactive Lecture

BLISTERS

Blisters are sign that boots do not fit properly or are not broken in. Blisters are also a sign that the feet are too tender for the distance being covered in the hike. The first sign of a blister is hot spots. Upon noticing a blister, relieve the pressure on the area by loosening the boots, removing a pair of socks, or even cutting a hole in the socks around the offending area.

SHIN SPLINTS

Shin splints are characterized as pain in the front of the lower leg. Shin splints primarily come from excess toe flexion (bending). Shin splints are usually caused by walking without extending the ankle on each step and not using the toes to press down on the ground. Do not wear clogs of any kind because the ankle needs to stay flexed to keep the clog on the foot.

MUSCLE CRAMPS

Muscle cramps are often associated with dehydration. Muscle cramps commonly occur in people who overwork their muscles to the point of exhaustion. Some possible causes of muscle cramps include:

- lack of water,
- lack of calcium,
- lack of potassium, and
- lack of sodium.

SPRAINS

A sprain occurs when the ligaments of a joint are torn by a sudden twist or wrench. Symptoms of a sprain can include the joint being very painful when moved, and considerable swelling. First aid for a sprain includes wrapping the joint in a heavy bandage and resting the limb in a comfortable elevated position.



Inform the cadets that if they experience any of the mentioned symptoms they should tell someone immediately and go to the nearest first aid station.

CONFIRMATION OF TEACHING POINT 1

QUESTION:

Q1. What are blisters a sign of?

Q2. What is the primary cause of shin splints?

Q3. What are the common causes of muscle cramps?

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ANTICIPATED ANSWERS:

A1. Blisters are a way of telling the body the boots do not fit, they are not broken in or the feet are too tender for the miles covered hiking.

A2. Shin splints primarily come from excess toe flexion.

A3. Lack of water, lack of calcium, lack of potassium, and lack of sodium.

Teaching point 2 **Explain how to recognize frostbite injuries.**

Time: 5 min Method: Interactive Lecture

FROSTBITE

There are several types of frostbite. Each of the types is increasingly worse than the previous. The types of frostbite include:

- **Incipient frostbite or frostnip**. This type of frostbite is the initial pain from the cold. It is followed by numbness and after rewarming, a tingling feeling. No permanent damage occurs with this type of frostbite.
- **Superficial frostbite**. This type of frostbite affects only the skin and tissue that is near the surface. The affected area is white and frozen to the touch, but the tissue beneath it is soft and resilient. In worse cases, blisters form after 24 to 36 hours and the pain of the injury may last several weeks.
- **Deep frostbite**. This frostbite is more serious and involves deeper tissue, possibly as deep as the bone. Before rewarming, the injured area is hard. Blisters usually form in three to seven days and are larger than in superficial frostbite. There will be a significant amount of swelling, which can last several weeks.

CONFIRMATION OF TEACHING POINT 2

QUESTIONS:

1. What is incipient frostbite or frostnip?
2. What is superficial frostbite?
3. What is deep frostbite?

ANTICIPATED ANSWERS:

1. It is the initial pain from the cold.
2. It only affects the skin and tissue that is near the surface.
3. It is more serious and involves deeper tissue, possibly as deep as the bone.

Teaching point 3 **Explain how to recognize the signs and symptoms of hypothermia.**

Time: 5 min Method: Interactive Lecture

HYPOTHERMIA

Hypothermia means too little heat. In medical terms it means a lowering of the body's core temperature, resulting in the breakdown of bodily functions.

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Some factors that contribute to hypothermia include:

- lack of proper nutrition or hydration,
- inadequate clothing,
- getting wet, and
- exhaustion.

Some ways to prevent hypothermia include:

- wearing a sufficient thickness of insulation,
- having protection from the wind,
- keeping dry (inside and out),
- maintaining proper nutrition and hydration, and
- pacing to prevent fatigue.

Signs to watch for in others include:

- complaints of feeling cold,
- stumbling,
- falling,
- slurred speech,
- violent shivering,
- poor judgement,
- irrational behaviour, and
- in extreme cases loss of urinary control and fruity acetone breath.

Signs for individuals to watch for in themselves include:

- feeling of deep cold,
- shivering,
- stumbling,
- falling, and
- poor coordination.

CONFIRMATION OF TEACHING POINT 3

QUESTIONS:

Q1. What are some factors that contribute to hypothermia?

Q2. What are the signs of hypothermia to watch for in others?

Q3. What are the signs of hypothermia to watch for in yourself?

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ANTICIPATED ANSWERS:

A1. Lack of proper nutrition or hydration, inadequate clothing, getting wet and exhaustion.

A2. Complaints of feeling cold, stumbling, falling, slurred speech, violent shivering, bad judgement, irrational behaviour, people with profound hypothermia may lose urinary control and have fruity acetone breath.

A3. Feeling of deep cold, shivering, stumbling, falling and poor coordination.

Teaching point 4 **Explain how to recognize heat related injuries.**

Time: 10 min Method: Interactive Lecture

HEAT CRAMPS

Heat cramps are usually the first warning of heat exhaustion. They occur in the muscles that are doing the most work such as the arms, legs and abdomen. Heat cramps are usually due to a lack of body salt.

Symptoms of heat cramps include:

- shallow breathing,
- vomiting, and
- dizziness.

Treatment for heat cramps includes:

- moving to shade,
- resting, and
- drinking water with a small amount of salt dissolved in it.

HEAT EXHAUSTION

Heat exhaustion is produced by exposure to high temperature and humidity. It is also produced through the loss of body fluids through excessive sweating. It can occur without direct exposure to the sun.

Symptoms of heat exhaustion include:

- pale face,
- cold and sweating skin,
- weak pulse accompanied by dizziness,
- weakness,
- cramps, and
- deliriousness or unconsciousness.

Treatment for heat exhaustion includes:

- moving to shade,
- resting, and
- drinking water with a small amount of salt dissolved in it.

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HEATSTROKE

Heatstroke is the most serious result of overexertion or overexposure to the sun.

Symptoms of heatstroke include:

- hot dry skin,
- flushed face and feverish,
- sweating stops,
- rising temperature,
- fast, strong pulse,
- severe headache,
- vomiting, and
- unconsciousness.

Treatments for heatstroke include:

- laying in the shade with head and shoulders slightly raised;
- removing layers of outer clothing;
- cooling body by wetting clothing with tepid (warm) water and fanning; and
- sprinkling water over the individual (do not fully immerse the individual in water).

SUNBURN

A sunburn with blistering is dangerous, especially with pale and sensitive skin.

Treatment for sunburn includes:

- avoiding further exposure to the sun by keeping in the shade or covering skin with clothes;
- taking painkillers if available; and
- covering all blisters with dressings (do not burst the blisters).

SORE EYES

Sore eyes may occur due to glare or excessive exposure to the sun or dust particles.

Treatment for sore eyes includes:

- resting in the shade;
- covering eyes after washing out the foreign debris;
- bathing eyes in warm water;
- using a mask to cover the eyes; and
- darkening below eyes with charcoal to avoid recurrence.

DEHYDRATION

Dehydration becomes more noticeable as more body fluid is lost. Water makes up 75% of the body’s weight. Survival is unlikely if more than one fifth of the body’s water is lost.

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For fluid loss between 1-5% of body weight, symptoms include:

- thirst,
- vague discomfort,
- lack of appetite,
- flushed skin,
- impatience,
- sleepiness, and
- nausea.

For fluid loss between 6-10% of body weight, symptoms include:

- dizziness,
- headache,
- laboured breathing,
- no salivation,
- indistinct speech, and
- unable to walk.

For fluid loss between 11-20% of body weight, symptoms include:

- delirium,
- swollen tongue,
- inability to swallow,
- dim vision,
- numb, and
- shrivelled skin.

In the latter stages of dehydration, there is significant muscular weakness and impaired mental capacity.



Inform the cadets that if they experience any of the symptoms listed in this class to tell someone immediately and go to the nearest first aid station.

CONFIRMATION OF TEACHING POINT 4

QUESTIONS:

Q1. What are the symptoms of heat stroke?

Q2. Survival is unlikely if how much of the body's water is lost?

Q3. What is the treatment for heat exhaustion?

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ANTICIPATED ANSWERS:

A1. Hot dry skin, flushed face and feverish – but sweating stops, temperature rises, pulse becomes fast and strong, severe headache, often with vomiting and unconsciousness may follow.

A2. One-fifth.

A3. Moving to shade, resting and drinking water with a little salt dissolved in it.

END OF LESSON CONFIRMATION

QUESTIONS:

Q1. What are blisters a sign of?

Q2. What are the three types of frostbite?

Q3. What are the signs of hypothermia to watch for in yourself?

ANTICIPATED ANSWERS:

A1. Blisters are a way of telling the body that one's boots do not fit, they are not broken in or one's feet are too tender for the miles they are covering in their hike.

A2. Incipient or frostnip, superficial frostbite and deep frostbite.

A3. Feeling of deep cold, shivering, stumbling, falling and poor coordination.

CONCLUSION

HOMEWORK / READING / PRACTICE

Nil.

METHOD OF EVALUATION

Nil.

CLOSING STATEMENT

Environmental injuries can be very serious and life threatening. Understanding the symptoms and basic treatments for these injuries provides individuals with the knowledge to possibly prevent and detect an injury earlier.

INSTRUCTOR NOTES / REMARKS

The directives outlined in CATO 11-08 *Environmental Protection and Stewardship* are to be adhered to during this training.

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