COMMON TRAINING

INSTRUCTIONAL GUIDE

SECTION 2

EO C211.02 – RUN ON ALTERNATING TERRAIN

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-802/PG-001, 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.

Ensure a first aid station is set up and a first aid attendant is available during the practical activities.

Photocopy the sample running schedule located at Annex B for each cadet.

Set up a running route on alternating terrain, depending on geographical location.

PRE-LESSON ASSIGNMENT

N/A.

APPROACH

An interactive lecture was chosen for TP1 and TP5 to introduce cadets to running techniques on alternating terrain and on how to implement a running program.

A practical activity was chosen for TP2 to TP4 as it is an interactive way to introduce the cadets to running on alternating terrain in a safe and controlled environment.

INTRODUCTION

REVIEW

Review EO C111.02 (Run Wind Sprints), to include:

- preparing for summer biathlon activities; and
- running techniques.

OBJECTIVES

By the end of this lesson the cadet shall have run on alternating terrain.

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IMPORTANCE

It is important for cadets to run on alternating terrain because it will be useful when participating in summer biathlon activities.

Teaching point 1 **Describe Running Techniques for Alternating Terrain**

Time: 5 min Method: Interactive Lecture

POSTURE/BODY ALIGNMENT

Uphill Running

On gradual inclines, runners should run a bit harder than when on level terrain. On steep inclines runners should lift the knees and push off with every step.

Downhill Running

When running downhill the runner should lean into the hill and use short, quick strides.

FOOT POSITIONING

Distance runners should land on their heels or mid-foot and roll forward to the toe while running. Running up on the toes is the method used by sprinters, and if used for distance running, may cause the shins and calves to become tight.

ENDURANCE

To increase endurance, runners should increase distance, duration, and level of difficulty of their runs.

CONFIRMATION OF TEACHING POINT 1

QUESTIONS

Q1. How should your foot strike the ground when running distances?

Q2. What technique should be used when running up steep inclines?

Q3. What technique should be used when running downhill?

ANTICIPATED ANSWERS

A1. Distance runners should land on their heels or mid-foot and roll forward to the toe.

A2. Lift the knees and push off with every step.

A3. Lean into the hill and use short, quick strides.

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Teaching point 2 **Conduct a Warm-up Session Composed of Light Cardiovascular Excercises**

Time: 5 min Method: Practical Activity



The following information will be explained to the cadets during the warm-up activity.

PURPOSE OF A WARM-UP

A warm-up is composed of stretches and light cardiovascular exercises designed to:

- stretch the muscles;
- gradually increase respiratory action and heart rate;
- expand the muscles' capillaries to accommodate the increase in blood circulation which occurs during physical activity; and
- raise the muscle temperature to facilitate reactions in muscle tissue.

GUIDELINES FOR STRETCHING

The following guidelines should be followed while stretching to prepare for physical activity and to help prevent injury:

- Stretch all major muscle groups, including the back, chest, legs, and shoulders.
- Never bounce while stretching.
- Hold each stretch for 10 to 30 seconds to let the muscles release fully.
- Repeat each stretch two to three times.
- When holding a stretch, support the limb at the joint.
- Static stretching, which is stretching a muscle and holding it in position without discomfort for 10 to 30 seconds, is considered the safest method.
- Stretching helps to relax the muscles and improve flexibility, which is the range of motion in the joints.
- As a guide, allow 10 minutes to warm-up for every hour of physical activity.



The stretches chosen should focus on the areas of the body that will be used the most during the running activity.

ACTIVITY

OBJECTIVE

The objective of this warm-up activity is to stretch the muscles and perform light cardiovascular exercises to prepare the body for physical activity and to help prevent injuries.

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RESOURCES

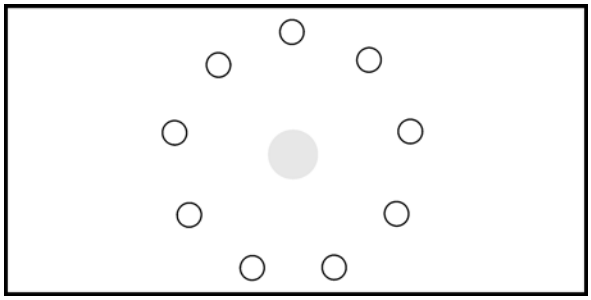
N/A.

ACTIVITY LAYOUT

N/A.

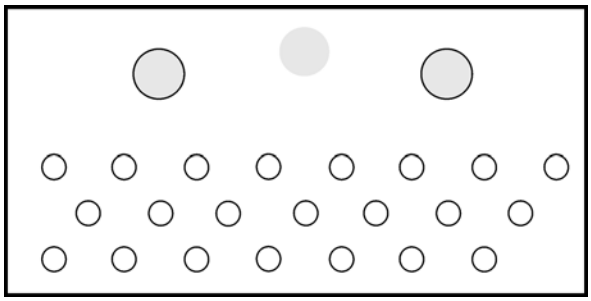
ACTIVITY INSTRUCTIONS

- Arrange the cadets in either a warm-up circle or in rows (as illustrated in Figures 1 and 2).



D Cdts 3, 2006, Ottawa, ON: Department of National Defence

Figure 1 Instructor in the Centre of a Warm-up Circle



D Cdts 3, 2006, Ottawa, ON: Department of National Defence

Figure 2 Instructor at the Front With Two Assistant Instructors

- Demonstrate before having the cadets attempt each stretch/light cardiovascular exercise.
- Assistant instructors can help demonstrate the exercises and ensure the cadets are performing them correctly.
- Have cadets perform each stretch/light cardiovascular exercise.



Light cardiovascular activities should be done to warm-up the muscles prior to stretching to avoid injury to or tearing of the muscles. For example, running on the spot for 30 seconds or performing jumping jacks should be performed prior to conducting the stretching activities located at Annex A.

SAFETY

- Ensure there are at least two arm lengths between the cadets so they can move freely.
- Ensure the cadets perform the stretches and light cardiovascular exercises in a safe manner, following the guidelines for stretching listed in this TP.

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CONFIRMATION OF TEACHING POINT 2

The cadets' participation in the warm-up will serve as the confirmation of this TP.

Teaching point 3 **Supervise While the Cadets Run on Alternating Terrain**

Time: 5 min Method: Practical Activity

ACTIVITY

OBJECTIVE

The objective of this activity is to have the cadets run on alternating terrain.

RESOURCES

- Area with alternating terrain that is large enough to conduct a run.
- A whistle.

ACTIVITY LAYOUT

N/A.

ACTIVITY INSTRUCTIONS

- Have the cadets run at a comfortable pace.
- Ensure that the run includes some uphill and downhill inclines, and that the cadets use the techniques described in TP1.

SAFETY

- Ensure a designated first aider and first aid kit are available.
- Ensure water is available for the cadets after they complete the run.

CONFIRMATION OF TEACHING POINT 3

The cadets' participation in the activity will serve as the confirmation of this TP.

Teaching point 4 **Conduct a Cool-down Session Composed of Light Cardiovascular Exercises**

Time: 5 min Method: Practical Activity



The following information will be explained to the cadets during the cool-down activity.

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PURPOSE OF A COOL-DOWN

A cool-down is composed of stretches and light cardiovascular exercises designed to:

- allow the body time to slowly recover from physical activity and to help prevent injury;
- prepare the respiratory system to return to its normal state; and
- stretch the muscles to help relax and restore them to their resting length.



The stretches chosen should focus on the areas of the body that were used the most during the running activity.

ACTIVITY

OBJECTIVE

The objective of the cool-down is to stretch the muscles and perform light cardiovascular exercises that allow the body time to recover from physical activity, and to prevent injury.

RESOURCES

N/A.

ACTIVITY LAYOUT

N/A.

ACTIVITY INSTRUCTIONS

- Arrange the cadets in either a warm-up circle or in rows (as illustrated in Figures 1 and 2).
- Demonstrate before having the cadets attempt each stretch/light cardiovascular exercise.
- Assistant instructors can help demonstrate the movements and ensure the cadets are performing them correctly.
- Have cadets perform each stretch/light cardiovascular exercise.

SAFETY

- Ensure there are at least two arm lengths between the cadets so they can move freely.
- Ensure the cadets perform the stretches and light cardiovascular exercises in a safe manner, following the guidelines for stretching listed in TP2.

CONFIRMATION OF TEACHING POINT 4

The cadets' participation in the cool-down will serve as the confirmation of this TP.

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Teaching point 5 **Describe How to Create and Implement a Running Schedule**

Time: 5 min Method: Interactive Lecture

PURPOSE OF RUNNING SCHEDULE

A running schedule will help a new runner ease into a training plan, or guide an experienced runner to increase their endurance. The schedule should allow the runner to gradually increase intensity at a comfortable pace. A sample running schedule is located at Annex B.

GUIDELINES FOR RUNNING SCHEDULES

The following guidelines should be followed when creating a running schedule to increase endurance and to help prevent injury:

- If there is no running background, begin with eight consecutive days of walking (20 minutes the first four days, and 30 minutes the remaining four days).
- If there is a running background, begin by walking/running four times a week for 20 to 30 min (e.g. 2 min running/4 min walking, repeat this five times for a 30 min workout).
- Increase the running time, as fitness level allows until the cadet is able to run for 30 minutes continuously.
- The distance run in 30 minutes will increase as fitness level improves, allowing for the run to be calculated based on distance instead of time.
- Change the terrain as fitness level improves.

CONFIRMATION OF TEACHING POINT 5

QUESTIONS

Q1. What is the purpose of a running schedule?

Q2. What should a person with no running background begin with?

Q3. What will increase as fitness level improves?

ANTICIPATED ANSWERS

A1. A running schedule will help a new runner ease into a training plan, or guide an experienced runner to increase their endurance.

A2. Begin with eight consecutive days of walking.

A3. The distance that can be run in 30 minutes will increase as fitness level improves.

END OF LESSON CONFIRMATION

The cadet's participation in the activity in TP3 will serve as the confirmation of this lesson.

CONCLUSION

HOMEWORK/READING/PRACTICE

N/A.

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METHOD OF EVALUATION

N/A.

CLOSING STATEMENT

Running on alternating terrain will help to increase endurance, which will be useful when participating in summer biathlon activities.

INSTRUCTOR NOTES/REMARKS

N/A.

REFERENCES

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C0-060 Impacto Protective Products Inc. (1998). *Exercises.* Retrieved 25 October 2006, from http://www.2protect.com/work3b.htm.

C0-061 City of Saskatoon, Community Services Department. (ND). *Stretch Your Limits: A Smart Guide To Stretching for Fitness.* Retrieved 26 October 2006, from http://in-motion.ca/walkingworkout/plan/flexibility/.

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C0-089 (ISBN 0-936070-22-6) Anderson, B. (2000). *Stretching: 20th Anniversary* (Rev. ed.). Bolinas, CA: Shelter Publications, Inc.

C0-146 Will-Weber, M. (2006). *Runner's World: Beginner's: Training: First Steps.* Retrieved 18 April 2007, from http://www.runnersworld.com/article/printer/1,7124,s6-380-381-386-678-0,00.html.

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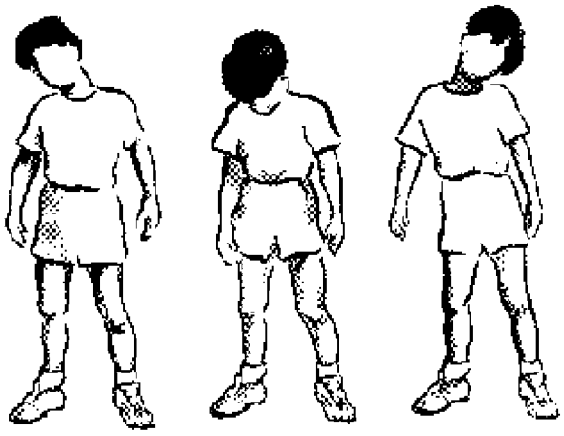
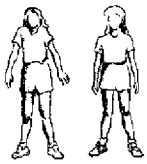
SAMPLE STRETCHES

NECK

 *Moving on the Spot: A Collection of 5 Minute Stretch and Movement Sessions, by B. Hanson, 1999, Toronto, Ontario: Toronto Public Health. Retrieved 26 October 2006, from http://www.lin.ca/resource/html/dn3.htm#l1* Figure A-1 Neck Stretch	Slowly roll your head across your chest from shoulder to shoulder. Do not roll your head backwards.

SHOULDERS

 *Moving on the Spot: A Collection of 5 Minute Stretch and Movement Sessions, by B. Hanson, 1999, Toronto, Ontario: Toronto Public Health. Retrieved 26 October 2006, from http://www.lin.ca/resource/html/dn3.htm#l1* Figure A-2 Shoulder Push	Stand and extend your arms behind you, interlocking your fingers. Push up and back with your shoulders. Hold this position for a minimum of 10 seconds.
 *Moving on the Spot: A Collection of 5 Minute Stretch and Movement Sessions, by B. Hanson, 1999, Toronto, Ontario: Toronto Public Health. Retrieved 26 October 2006, from http://www.lin.ca/resource/html/dn3.htm#l1* Figure A-3 Shoulder Shrug	Stand and raise your shoulders as high as possible and then lower your shoulders, stretching your neck up. Pull your shoulders back as far as possible and then round your shoulders forward by pushing your shoulders forward as far as possible. Hold each position for a minimum of 10 seconds.

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 *Warm Ups, by Martha Jefferson Hospital, Copyright 2001 by Martha Jefferson Hospital. Retrieved 26 October 2006, from http://www.marthajefferson.org/warmup.php* Figure A-4 Arm Circles	Hold your arms straight out, palms up. Make small circles with your arms, gradually increasing the size. Reverse the direction of your circles.
 *Smart Start: A Flexible Way to Get Fit. Retrieved 26 October 2006, from http://www.in-motion.ca/walkingworkout/plan/flexibility/* Figure A-5 Shoulder Stretch	Either standing or sitting, take your right arm in your left hand and bring it across your chest, supporting the joint by holding it behind the elbow. Pull the elbow lightly towards your chest. You should feel the stretch in your right shoulder. Hold this position for a minimum of 10 seconds and repeat on the opposite side.

ARMS

 *Exercises. Copyright 1998 by Impacto Protective Products Inc. Retrieved 26 October 2006, from http://www.2protect.com/home.htm* Figure A-6 Wrist Rotations	Rotate your hands in circular motions at the wrist. Change direction and repeat on both sides.
 *Smart Start: A Flexible Way to Get Fit. Retrieved 26 October 2006, from http://www.in-motion.ca/walkingworkout/plan/flexibility/* Figure A-7 Triceps Stretch	Stand and bring your right arm over your head, bent at the elbow. Use your left hand to gently pull your arm down. Hold this position for a minimum of 10 seconds and repeat on the opposite side.

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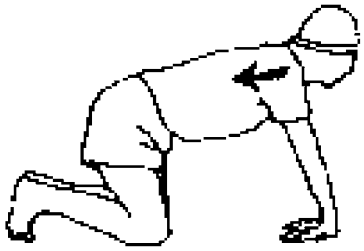 *Exercise Programme for Squash, Tennis, Softball, Handball. Retrieved 26 October 2006, from http:// www.physionline.co.za/conditions/article.asp?id=49* Figure A-8 Forearm Stretch	In a kneeling position, place your hands on the floor in front of you with your fingers pointing toward your knees, and your thumbs pointing out. Keeping your hands flat on the floor, lean back. Hold this position for a minimum of 10 seconds.

CHEST AND ABDOMINALS

 *Smart Start: A Flexible Way to Get Fit. Retrieved 26 October 2006, from http://www.in-motion.ca/walkingworkout/plan/flexibility/* Figure A-9 Chest Stretch	Stand facing a wall. With your right arm bent and your elbow at shoulder height, place your palm against the wall. Turn your body away from your right arm. You should feel the stretch on the front side of your armpit and across the front of you chest. Hold this position for a minimum of 10 seconds and repeat on the opposite side.
 *Moving on the Spot: A Collection of 5 Minute Stretch and Movement Sessions, by B. Hanson, 1999, Toronto, Ontario: Toronto Public Health. Retrieved 26 October 2006, from http://www.lin.ca/resource/html/dn3.htm#I1* Figure A-10 Side Stretch	Stand with your left arm up over your head. Bend at the waist towards the right side of your body. Hold this position for a minimum of 10 seconds and repeat on the opposite side.

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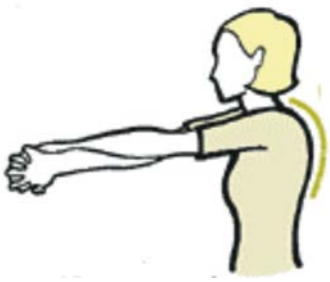
BACK

 *Smart Start: A Flexible Way to Get Fit. Retrieved 26 October 2006, from http://www.in-motion.ca/walkingworkout/plan/flexibility/* Figure A-11 Lower Back Stretch	Lie on your back and bring your knees toward your chest. Grasp the back of your knees. Hold this position for a minimum of 10 seconds.
 *Smart Start: A Flexible Way to Get Fit. Retrieved 26 October 2006, from http://www.in-motion.ca/walkingworkout/plan/flexibility/* Figure A-12 Upper Back Stretch	Extend your arms straight in front of you at shoulder height crossing one arm over the other. With the palms facing each other, intertwine your fingers and press out through your arms. Let your chin fall to your chest as you exhale. You should feel the stretch in the upper back. Hold this position for a minimum of 10 seconds and repeat on the opposite side.

LEGS

 *Smart Start: A Flexible Way to Get Fit. Retrieved 26 October 2006, from http://www.in-motion.ca/walkingworkout/plan/flexibility/* Figure A-13 Hamstring Stretch	Lie flat on the floor with your knees bent and your back flat on the floor. Slowly raise and straighten one leg, grasping it behind your thigh with both hands. Hold this position for a minimum of 10 seconds.

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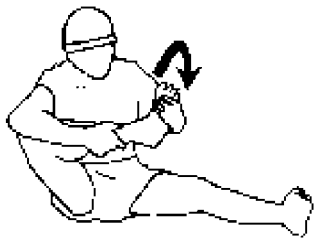
 *Smart Start: A Flexible Way to Get Fit. Retrieved 26 October 2006, from http://www.in-motion.ca/walkingworkout/plan/flexibility/* Figure A-14 Inner Thigh Stretch	Sit on the floor with your knees bent and the soles of your feet together. Grab your toes and pull yourself forward while keeping your back and neck straight. Hold this position for a minimum of 10 seconds. Grab your ankles and push your knees down toward the floor with your elbows. Hold this position for a minimum of 10 seconds.
 *Smart Start: A Flexible Way to Get Fit. Retrieved 26 October 2006, from http://www.in-motion.ca/walkingworkout/plan/flexibility/* Figure A-15 Hip Flexor	Kneel on your right knee. Position your left foot in front of you, bending your knee and placing your left hand on that leg for stability. Keep your back straight and abdominal muscles tight. Lean forward, shifting more body weight onto your front leg. You should feel the stretch in the front of your hip and the thigh of the leg you are kneeling on. Cushion your kneecap with a folded towel if necessary. Hold this position for a minimum of 10 seconds and repeat on the opposite side.
 *Running Exercises. Retrieved 26 October 2006, http:// www.physionline.co.za/conditions/article.asp?id=46* Figure A-16 Ankle Rotations	From a sitting position, rotate your foot in a clockwise, and then a counterclockwise, direction. Switch and repeat on the opposite side.

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 *Smart Start: A Flexible Way to Get Fit. Retrieved 26 October 2006, from http://www.in-motion.ca/walkingworkout/plan/flexibility/* Figure A-17 Calf Stretch	Stand three steps away from and facing a wall. Step in towards the wall with your right leg, bending your right knee and keeping your left leg straight. Extending your arms with your palms forward, reach out to the wall and let your body fall toward the wall. Keep your toes forward and your heels down. Lean your body into the wall with your left leg straight behind your body. You should feel the stretch in your left calf. Hold this position for a minimum of 10 seconds and repeat on the opposite side.
 *Smart Start: A Flexible Way to Get Fit. Retrieved 26 October 2006, from http://www.in-motion.ca/walkingworkout/plan/flexibility/* Figure A-18 Quadriceps Stretch	Stand with your hand against a wall for balance. Lift your left foot off the ground, bending your knee as if you are trying to kick your bottom with your heel. Do not lean forward at the hips. Grab and hold your ankle with your left hand. You should feel the stretch in your left thigh. Hold this position for a minimum of 10 seconds and repeat on the opposite side.

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TEN WEEK RUNNING SCHEDULE

Week	Run	Walk	Number of Cycles	Notes
1	2 min	4 min	5	
2	3 min	3 min	5	
3	5 min	2.5 min	4	
4	7 min	3 min	3	
5	8 min	2 min	3	
6	9 min	2 min	2	Run an additional 8 min after the two cycles are completed.
7	9 min	1 min	3	
8	13 min	2 min	2	
9	14 min	1 min	2	
10	30 min			

Note: Always remember to include a warm-up and a cool-down in your schedule.

"First Steps", by Mark Will-Weber, 2006, Runner's World: Beginner's: Training, Copyright 2006 by Rodale Inc. Retrieved 18 April 2007, from http://www.runnersworld.com/article/printer/1,7124,s6-380-381-386-678-0,00.html

Figure B-1 Sample Running Schedule

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