

# CHAPTER 2: Preparing for Physical Activity

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# Factors to Consider **BEFORE** Beginning Physical Activity

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- **Screening for medical readiness**
- **Dress properly**
- **Shoes = NB for safe & effective exercise**

# Self-guided Screening

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- Recommendation of the Surgeon general's report on PA
- PAR-Q

# Basic recommendation of the Surgeon general's report on PA

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- Older individuals (men > 40 / women > 50)
- Individuals with CHD risk factors (Family history, high cholesterol, high blood pressure, sedentary lifestyle, smoker, diabetic)





# PAR-Q

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**P** HYSICAL

**A** CTIVITY

**R** EADINESS

**Q** UESTIONNAIRE

# PAR-Q & YOU

(A Questionnaire for People Aged 15 to 69)

Regular physical activity is fun and healthy, and increasingly more people are starting to become more active every day. Being more active is very safe for most people. However, some people should check with their doctor before they start becoming much more physically active.

If you are planning to become much more physically active than you are now, start by answering the seven questions in the box below. If you are between the ages of 15 and 69, the PAR-Q will tell you if you should check with your doctor before you start. If you are over 69 years of age, and you are not used to being very active, check with your doctor.

Common sense is your best guide when you answer these questions. Please read the questions carefully and answer each one honestly: check YES or NO.

YES	NO	
<input type="checkbox"/>	<input type="checkbox"/>	1. Has your doctor ever said that you have a heart condition <u>and</u> that you should only do physical activity recommended by a doctor?
<input type="checkbox"/>	<input type="checkbox"/>	2. Do you feel pain in your chest when you do physical activity?
<input type="checkbox"/>	<input type="checkbox"/>	3. In the past month, have you had chest pain when you were not doing physical activity?
<input type="checkbox"/>	<input type="checkbox"/>	4. Do you lose your balance because of dizziness or do you ever lose consciousness?
<input type="checkbox"/>	<input type="checkbox"/>	5. Do you have a bone or joint problem (for example, back, knee or hip) that could be made worse by a change in your physical activity?
<input type="checkbox"/>	<input type="checkbox"/>	6. Is your doctor currently prescribing drugs (for example, water pills) for your blood pressure or heart condition?
<input type="checkbox"/>	<input type="checkbox"/>	7. Do you know of <u>any other reason</u> why you should not do physical activity?

If  
you  
answered

## YES to one or more questions

Talk with your doctor by phone or in person BEFORE you start becoming much more physically active or BEFORE you have a fitness appraisal. Tell your doctor about the PAR-Q and which questions you answered YES.

- You may be able to do any activity you want — as long as you start slowly and build up gradually. Or, you may need to restrict your activities to those which are safe for you. Talk with your doctor about the kinds of activities you wish to participate in and follow his/her advice.
- Find out which community programs are safe and helpful for you.

## NO to all questions

- If you answered NO honestly to all PAR-Q questions, you can be reasonably sure that you can:
- start becoming much more physically active — begin slowly and build up gradually. This is the safest and easiest way to go.
  - take part in a fitness appraisal — this is an excellent way to determine your basic fitness so that you can plan the best way for you to live actively. It is also highly recommended that you have your blood pressure evaluated. If your reading is over 144/94, talk with your doctor before you start becoming much more physically active.

### DELAY BECOMING MUCH MORE ACTIVE:

- If you are not feeling well because of a temporary illness such as a cold or a fever — wait until you feel better; or
- If you are or may be pregnant — talk to your doctor before you start becoming more active.

**PLEASE NOTE:** If your health changes so that you then answer YES to any of the above questions, tell your fitness or health professional. Ask whether you should change your physical activity plan.

**Informed Use of the PAR-Q:** The Canadian Society for Exercise Physiology, Health Canada, and their agents assume no liability for persons who undertake physical activity, and if in doubt after completing this questionnaire, consult your doctor prior to physical activity.

**No changes permitted. You are encouraged to photocopy the PAR-Q but only if you use the entire form.**

NOTE: If the PAR-Q is being given to a person before he or she participates in a physical activity program or a fitness appraisal, this section may be used for legal or administrative purposes.

"I have read, understood and completed this questionnaire. Any questions I had were answered to my full satisfaction."

NAME \_\_\_\_\_

SIGNATURE \_\_\_\_\_

DATE \_\_\_\_\_

SIGNATURE OF PARENT  
or GUARDIAN (for participants under the age of majority) \_\_\_\_\_

WITNESS \_\_\_\_\_

**Note: This physical activity clearance is valid for a maximum of 12 months from the date it is completed and becomes invalid if your condition changes so that you would answer YES to any of the seven questions.**



# Professional Guided Screening

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- ACSM Risk Stratification
- Guidelines for professionally guided screening



# ACSM Risk Stratification Categories

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## LOW RISK: Moderate & Vigorous Ex

- People without heart disease symptoms and have no more than 1 risk factor

## MODERATE RISK: Low-Moderate Ex

- People without heart disease symptoms who have 2 or more risk factors

## HIGH RISK: Medical exam before Ex

- People with known pulmonary or metabolic disease, or 1 or more signs or symptoms of the risk factors

# Risk Factors

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## CVD Risk Factors

Family history of heart disease

Smoker

High BP

High cholesterol

Abnormal blood glucose levels

Obesity

Sedentary lifestyle

Low HDL cholesterol

Men age 45 or older Woman age 55 or older

# Signs and Symptoms

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Chest,  
neck, jaw  
pain

Shortness  
of breath

Difficult  
breathing

Heart  
palpitations

Pain in  
legs

Dizziness

# Appropriate Clothing for Activity

## General Guidelines

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- Avoid clothing that is too tight or that restricts movement.
- Material in contact with skin should be porous.



# Appropriate Clothing for Activity

## General Guidelines

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- Clothing should protect against wind and rain but allow for heat loss and evaporation.
- Wear layers so that a layer can be removed if not needed.



# Appropriate Clothing for Activity

## General Guidelines

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- Wear socks for most activities to prevent blisters, abrasions, odor, and excessive shoe wear.
- Socks should be absorbent and fit properly.
- Do not use nonporous clothing that traps sweat in an attempt to lose weight.



# Special considerations

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# ANATOMY OF AN ACTIVITY SHOE

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- **Achilles notch:** Protects tendon
- **Arch support:** Supports arch; height and shape of arch should vary with foot characteristics
- **Heel counter:** Provides movement control; a stiff counter helps with pronation (toes turn in)

**ARCH TYPE → FOOT ALIGNMENT → SHOE TYPE**



normal arch



neutral

STABILITY  
SHOE



high arch



supinator

CUSHIONED  
SHOE



flatfoot



pronator

MOTION  
CONTROL  
SHOE

Fig. 3



# ANATOMY OF AN ACTIVITY SHOE

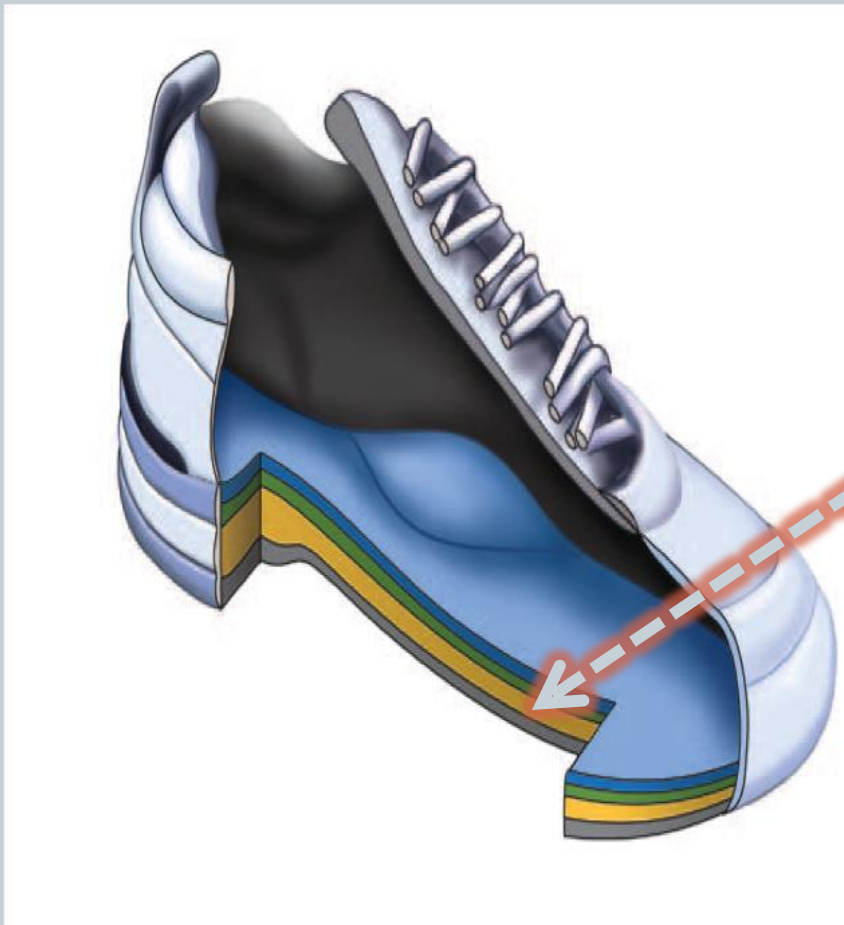
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- **Insole (last):** Refers to shoe shape; curved, straight (good for heavier or flat-footed people), or semi-curved (moderate flexibility and stability)
- **Insole (sockliner):** Removable layer for additional shock and sweat absorption

# ANATOMY OF AN ACTIVITY SHOE

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- **Material:** Light, porous
- **Midsole:** Provides cushion, stability, and motion control; important for shock absorption

# ANATOMY OF AN ACTIVITY SHOE

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- **Outsole:** Provides traction; determines shoe flexibility;
- **Toe box:** Should have adequate space to wiggle toes and prevent rubbing on top of toes and adequate length so toes do not contact front of shoe

# Wearing Good Shoes is Important

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- 1. Running
- 2. Court
- 3. Aerobic
- 4. Walking
- 5. Tennis
- 6. Cross trainers



# Factors to Consider During Daily Physical Activity

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- Warm-up & cool-down
- Environmental factors

# Components of a Workout

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- **Warm-up**
- **Main activity**
- **Cool-down**

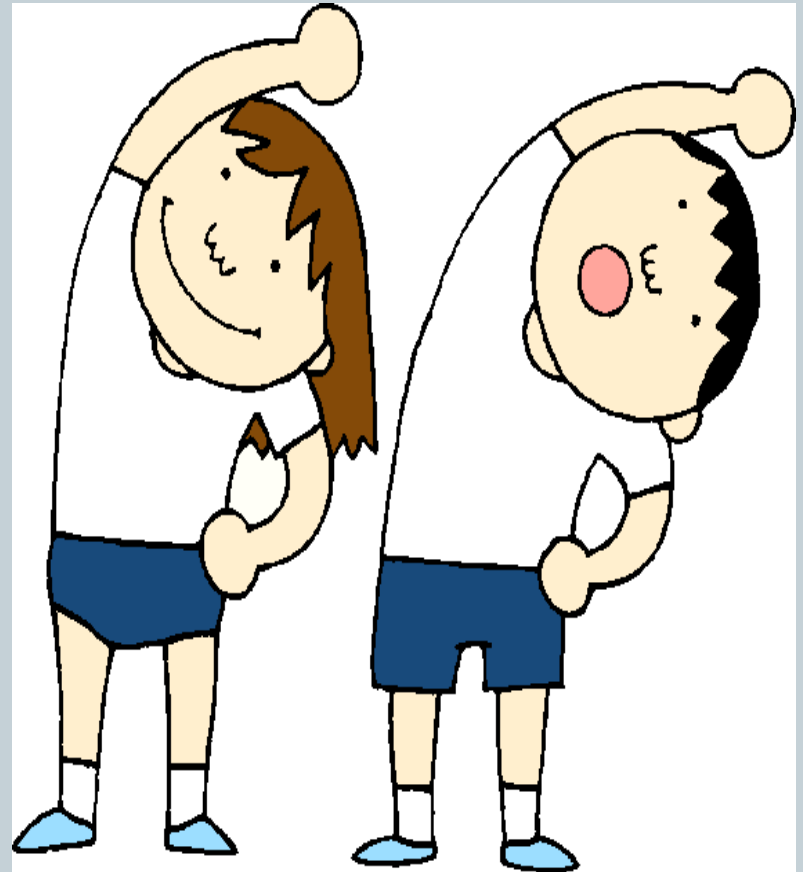


# Benefits of a Warm-up

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Prepares:

- cardiovascular system
- metabolic system
- musculoskeletal system



# Components of a Warm-up

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1. General aerobic & muscular endurance
2. Stretch warm-up

# Components of a Warm-up

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## General Aerobic & Muscular Endurance

- 5-10 Minutes
- Low-moderate intensity
- Examples??

## Stretching

- 10 Minutes
- Static
- Dynamic

# Main Objectives: General Warm-up

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- Prepare
  - Heart, blood vessels, muscles & other systems
- ↑ Body temp
- Reduce muscle soreness
- Allow body to adapt to demands of workout

# Main Objectives: Stretch Warm-up

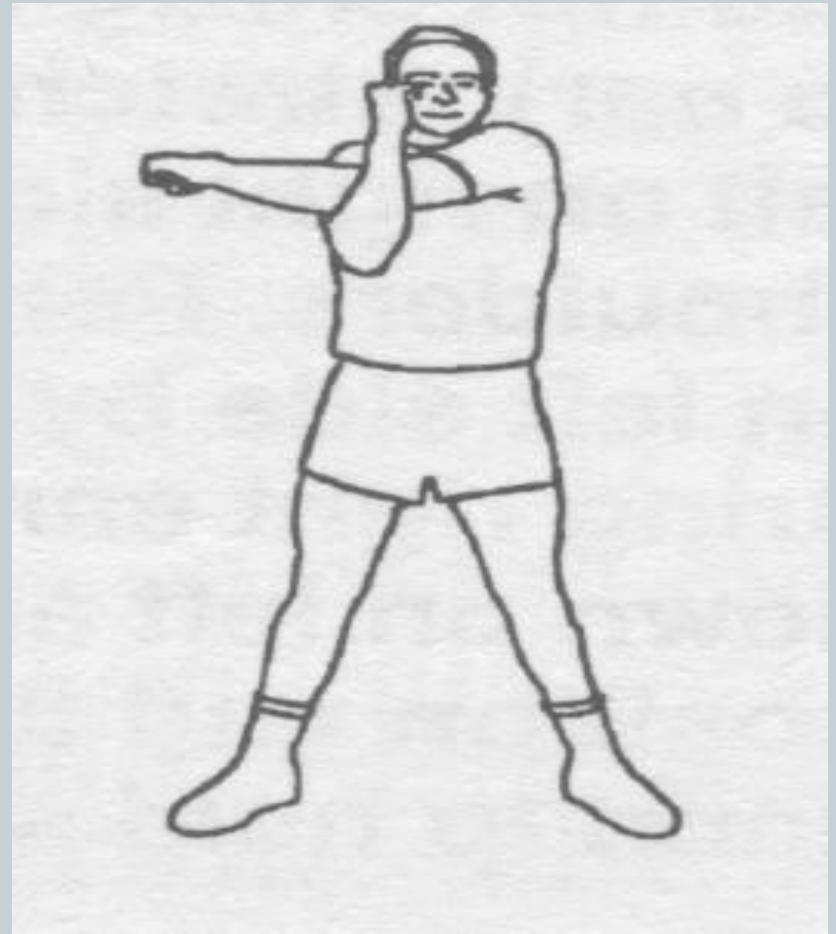
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- ↓ Risk of injury (sports requiring extensive ROM)
- ↓ DOMS
- ↑ Performance in sports

# Static Stretching

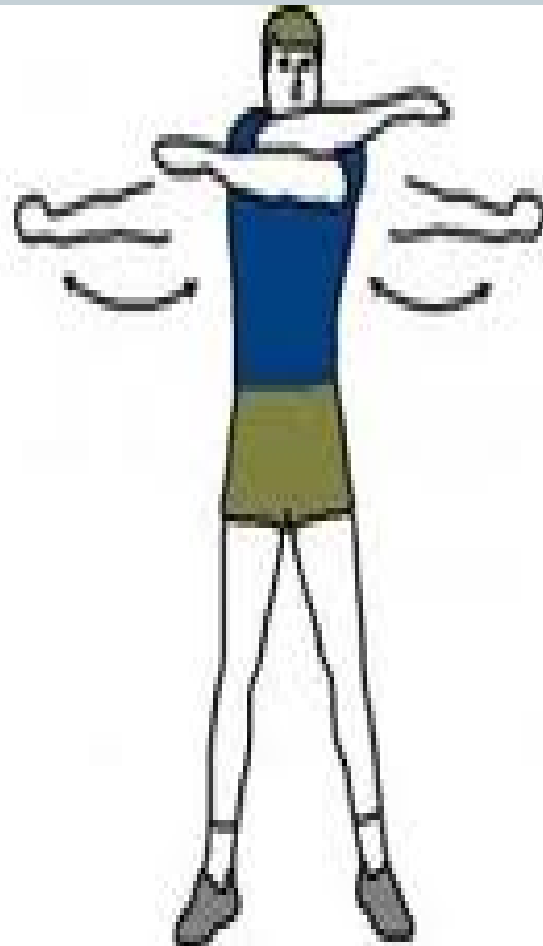
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- Involves reaching forward to a point of tension and holding the stretch
- 15-30 seconds



# Dynamic Stretching

- Stretching muscles through their full ROM in a controlled manner
- Functional based exercises which use sport specific movements



# Benefits of a Cool-down

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- 5-10 min: light-moderate activity
- 10 min: stretching
- Reduces blood pooling
- Promotes recovery
- Minimizes muscle soreness
- Reduce metabolic by-products
- Return cardiovascular system to normal state

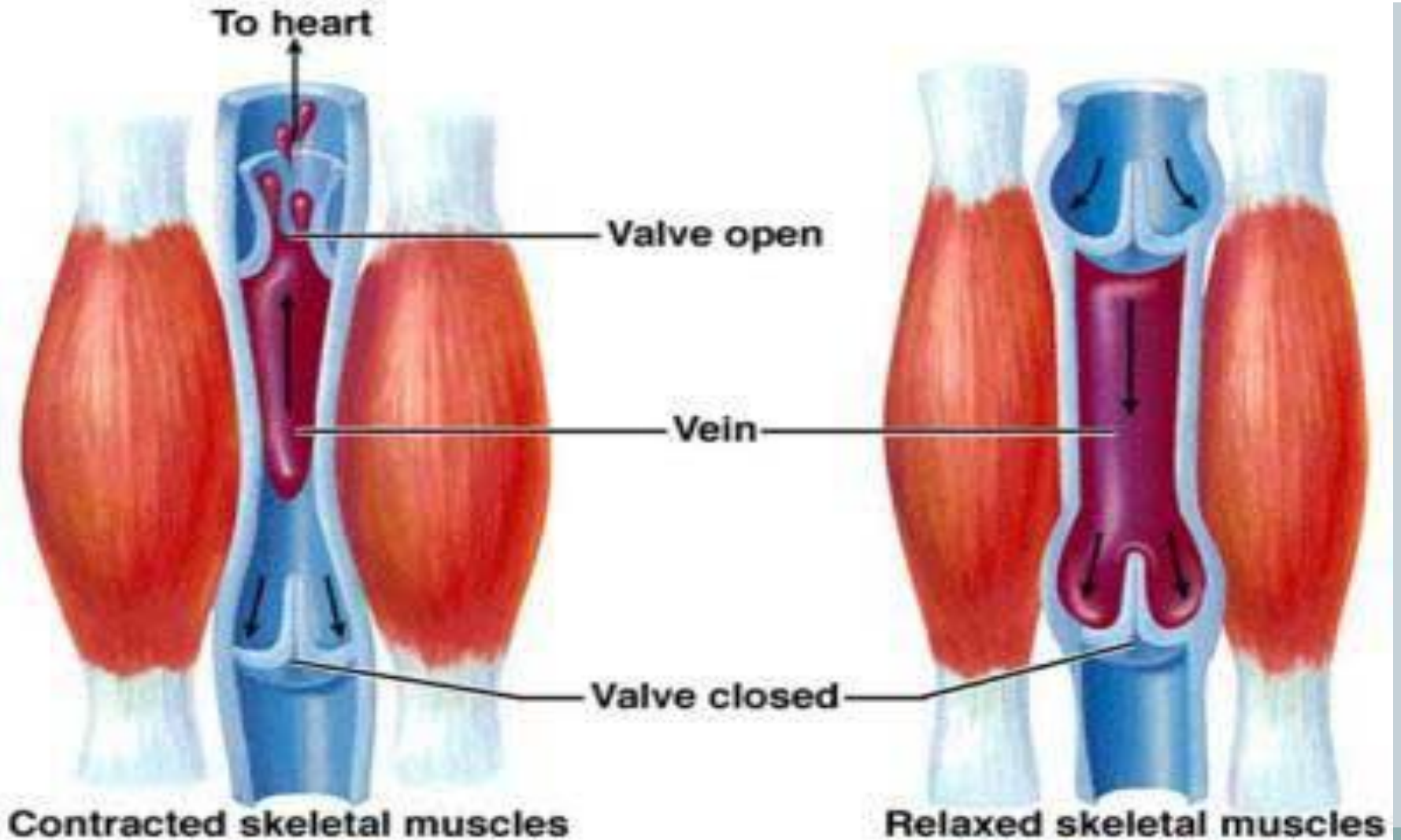


# Blood Pooling in Legs



- Heart pumps large amount of blood to the working muscles
  - This blood is carrying both oxygen and nutrients to the muscles and then returns to the heart for oxygen.
  - When the exercise stops, so does the force that pushes the blood back to the heart.
- Cooling down keeps the blood circulating, which in turn helps to prevent blood pooling.
  - Heart has less blood to pump → BP may drop
  - Dizziness & person can pass out.

# Blood Pooling



# Blood Pooling



# Exercising Safely in Different Environments

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- Heat
- Cold
- Altitude

# Hot/Cold Conditions

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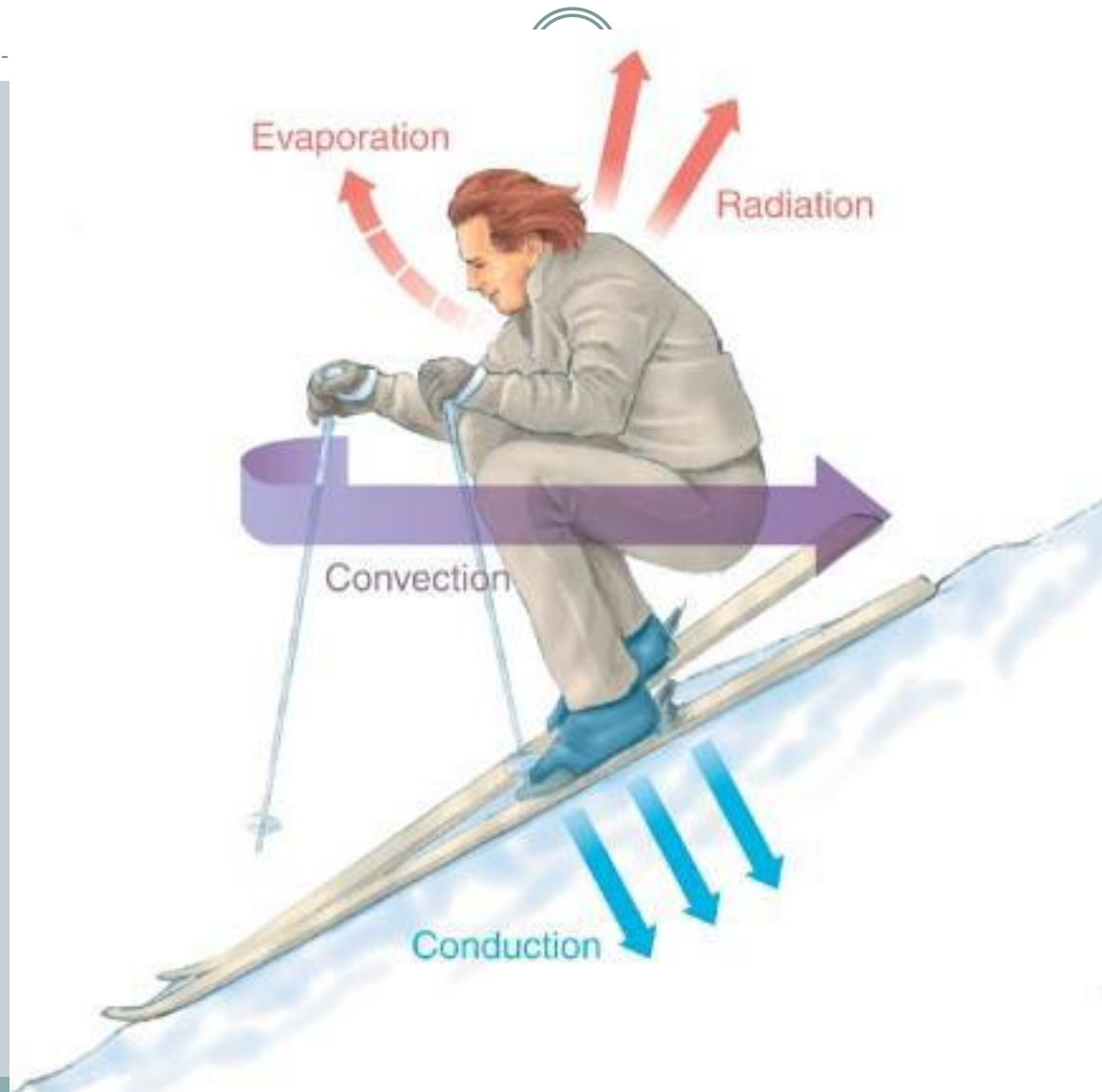
## Hyperthermia

- Excessively high temperature
- Caused by excessive heat production or impaired heat loss capacity

## Hypothermia

- Excessively low body temperature
- Characterized by uncontrollable shivering, loss of coordination, and mental confusion

# 4 Heat Loss Mechanisms



Clammy/pale skin

Flushed skin

Nausea

High temperature

Headache

Fast pulse

Weakness

Unconscious

Dizziness

Hot/dry skin

Muscle cramps

## HEAT ILLNESSES

Heat cramps

Heat Exhaustion

Heatstroke

# Exercise in the Heat

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- Avoid high heat/humidity
- Replace fluids
- Gradual exposure (acclimatization)
- Dress properly
- Rest frequently
- Watch for signs



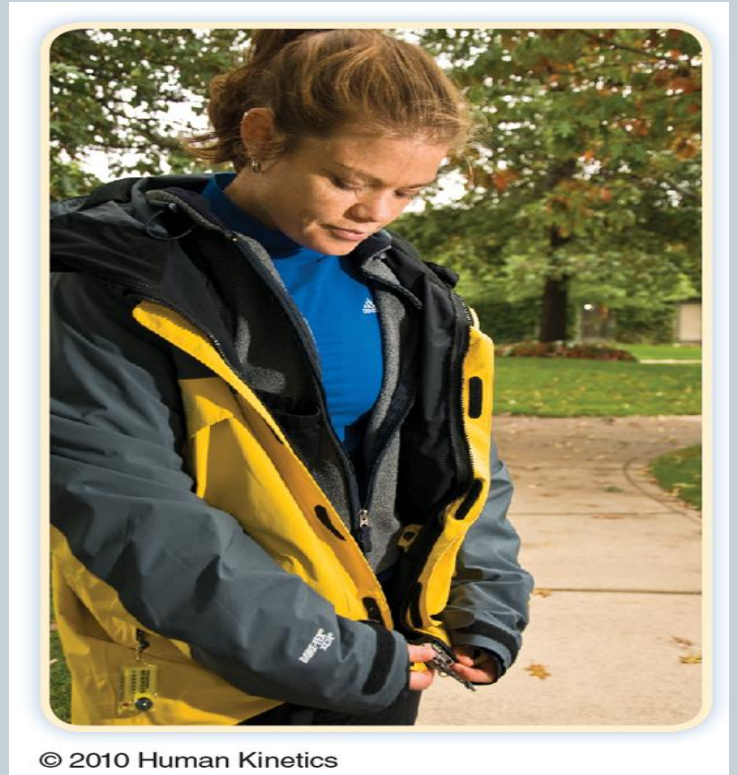
# Dress properly



Heat



Cold



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# Dress properly



## Heat

- White or light colors
  - Reflect heat
- Wickable fabrics
  - Aid evaporative cooling
- Porous hat or cap

## Cold

- Light clothing
- 3 Layer System
  1. Wickable fabrics
    - Transfer moisture away from skin
  2. Absorbent layer
  3. Porous Windbreaker
    - Keeps wind from cooling body & release body heat
- Hands, feet, nose & ears should be covered - frostbite

# Dress properly



**Polypropylene**



**Cotton**



# Replace fluids

- 2 cups (0.5L) before
- 1cup (250 ml) every 15-20 min during
- 2 cups for each 0.45kg weight lost
- Thirst mechanism lags behind body's actual need for fluid
- Select fluid-replacements that contains electrolytes



# Replace fluids (Cont)



- **Hyponatremia**
  - Water intoxication
  - Drinking too much water
  - Dilution of electrolytes in blood
  - Similar symptoms of dehydration



# Effects of Altitude

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- Lower partial pressure of oxygen leads to shortness of breath
- Acclimation (min 2weeks – several months) will adjust the body to lower oxygen pressure found at high altitude



# DOMS

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- **Occurs** in 24-48 hours
- **Caused** by intense/unaccustomed exercise
- **Results** from microscopic muscle tears - inflammation
- **Lasts** 48-72 hours
- **Avoid** by gradually progress exercise programme



# Common Injuries

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- Sprains - ligaments
- Strains - muscles/tendons



# Treatment of minor Injuries

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**R**est

helps limit movement that can worsen the injury;

**I**ce

applied to the area reduces swelling and helps stop any bleeding (heat has the opposite effect);

**C**ompression

means applying pressure to the area (or wrapping with a cloth or bandage) to help stop the bleeding;

**E**levation

means raising the injured area above the rest of the body as a way to reduce swelling.

# Attitudes about PA

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- Knowing the most common reasons for inactivity can help you avoid sedentary living

I don't have time

Its too  
inconvenient

Im no good at PA

I just don't enjoy it

I am not fit

I am to old

I have no place to  
be active

# Common Reasons for Participating in Regular PA

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Health, wellness & fitness

Appearance

Relaxation

Enjoyment

Challenge & sense of accomplishment

Social involvement

Competition

Experience nature

Feel good