

Movement Competence

- 2.1 Why Movement Matters
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- 2.3 Learning Movement Skills
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- 2.5 Game Strategies and Tactics



Mike's Story



How can you develop and work toward your own personal level of movement competence?

Each of us has a movement competence journey, no matter what our ability level. Whether we are at work or at play, moving competently can improve our confidence, safety, and overall quality of life. The more movements we can perform competently, the greater the likelihood that we will follow an active lifestyle.

Moving well begins by simply becoming aware of the key features and fundamental patterns that underlie how we move as we perform activities, games, sports, and everyday tasks.

Breaking a movement into its component parts helps us assess and improve how we move. From an early age, we begin to observe that skills learned in one activity can transfer to other activities that involve similar movement patterns. Skills that are not specific to sports can be transferred to a sports context, and vice versa.

This transferability of skills means that you can engage more confidently and competently in a wide range of physical activities, games, and sports in many different environments.

Learning Objectives

In this chapter, you will...

- develop an understanding of how to improve your movement competence
- demonstrate an understanding of skill transferability
- demonstrate an understanding of the phases of movement skills while participating in a variety of physical activities
- apply appropriate movement principles to refine your skills in undertaking a variety of physical activities
- demonstrate and apply an understanding of the components of a range of physical activities
- identify and implement tactical solutions while participating in a variety of physical activities
- demonstrate an understanding of how applying movement concepts, skills, and strategies affects your competence, confidence, and desire to participate in physical activities

► **Mike Doherty** was in Grade 9 when he broke his neck in a diving accident. Despite the odds, his determination and the support of his teachers kept him enrolled in his high school physical education program. Today, Mike's movement competence is critical to his career as a firefighter and to his participation in Canada's challenging FireFit Championships.

Key Terms

- movement competence
- demands capacity framework
- the seven key movement features
- fundamental movement patterns
- skill
- deliberate practice
- phases of a movement skill
- skill transferability
- fundamental sports skills
- movement principles
- stability
- maximum effort
- joint range of motion
- Teaching Games for Understanding (TGfU)
- territory activities
- net/wall activities
- striking/fielding activities
- target activities
- individual activities
- outdoor activities

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2.1 Why Movement Matters

Stop and ask yourself: “Why does movement matter to me? What physical activities are important to me? What does my typical day look like?”

You may recall from Chapter 1 that movement competence is an important component of physical literacy. **Movement competence** typically refers to *how* someone is moving—when we demonstrate movement competence, we move in a safe or effective manner, or both, in order to achieve the objective of the activity that we are performing.

Regardless of who we are or what activities we are involved in, how we move matters. It matters when we are participating in an activity or a sport, going about our daily routines, or performing a job-related task. Moving competently matters to everyone, everywhere, because we all want to perform well in whatever we do while remaining safe and free of injury.

Ultimately, when we reflect on why movement competence is so important, it comes down to one thing: *being able to do all the things we need or love to do so that we can enjoy life today and well into the future.*



What Influences How We Move?

How we move while performing any physical activity, whether that activity is something we need or want to do, is influenced by many factors—for example, our motivation, our abilities, and the environment. Movement is influenced by our characteristics as individuals and by everything around us. In other words, how we move depends on the context in which we are performing an activity. The factors that influence our movement patterns can be broadly categorized into three types:

Personal factors

Think about how and why you move as an individual while throwing a baseball. How you throw the ball will be influenced by many unique personal characteristics, including your physical attributes, fitness level, coordination, confidence, attitude, emotions, motivation, and awareness of both your body and your surroundings. For instance, factors such as limited shoulder range of motion, feeling exhausted after a late night, or playing baseball every summer for the past six years could all influence how you throw a ball.

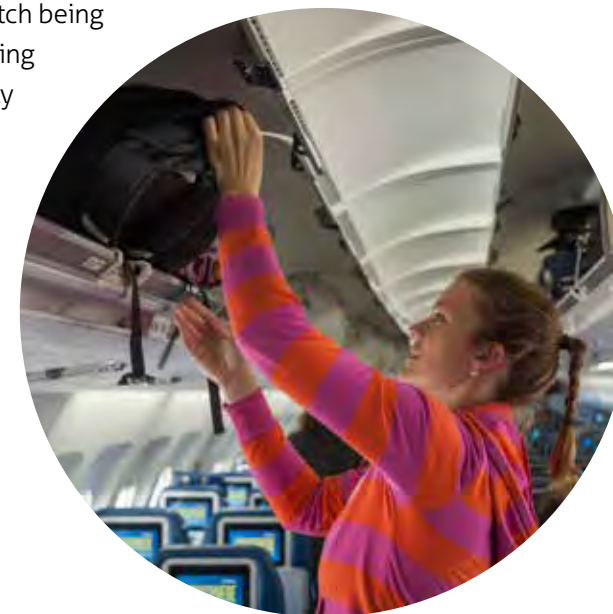
Environmental factors

How you throw a baseball is also influenced by the environment you are in. For instance, the surface on which you are standing (e.g., grass versus pavement), the temperature (e.g., hot versus cold), weather conditions (e.g., rainy versus sunny), background sounds or music, verbal instructions from a coach, and the presence of social groups such as friends or peers could all influence how you throw the ball.

The task or activity

Lastly, features of the specific task or activity that you are performing will influence your movement. When you throw a baseball, task-related factors such as the size and weight of the ball or the type of pitch being thrown will influence how you move. Suppose you were throwing a boomerang instead of a baseball. This difference could clearly influence your throwing action.

When someone lifts a bag into an overhead compartment on a plane, various contextual factors affect the person's movement patterns. These factors include the person's size, strength, and fitness; the size, weight, and shape of the bag; and the temperature inside the cabin of the plane. Think of other examples of how your movement patterns are influenced by personal, environmental, or task-specific factors.



Daily Demands Differ

What demands are experienced by a person who enjoys an early morning bike ride, walk, or run before going to school or work each day? The terrain of the biking, walking, or running route imposes physical demands. Paying attention to traffic, pedestrians, and potholes would impose cognitive demands. Anxiety about completing the activity on time would represent an affective, or emotional, demand. Biking, walking, or running with friends and trying to match their pace would constitute a behavioural demand.

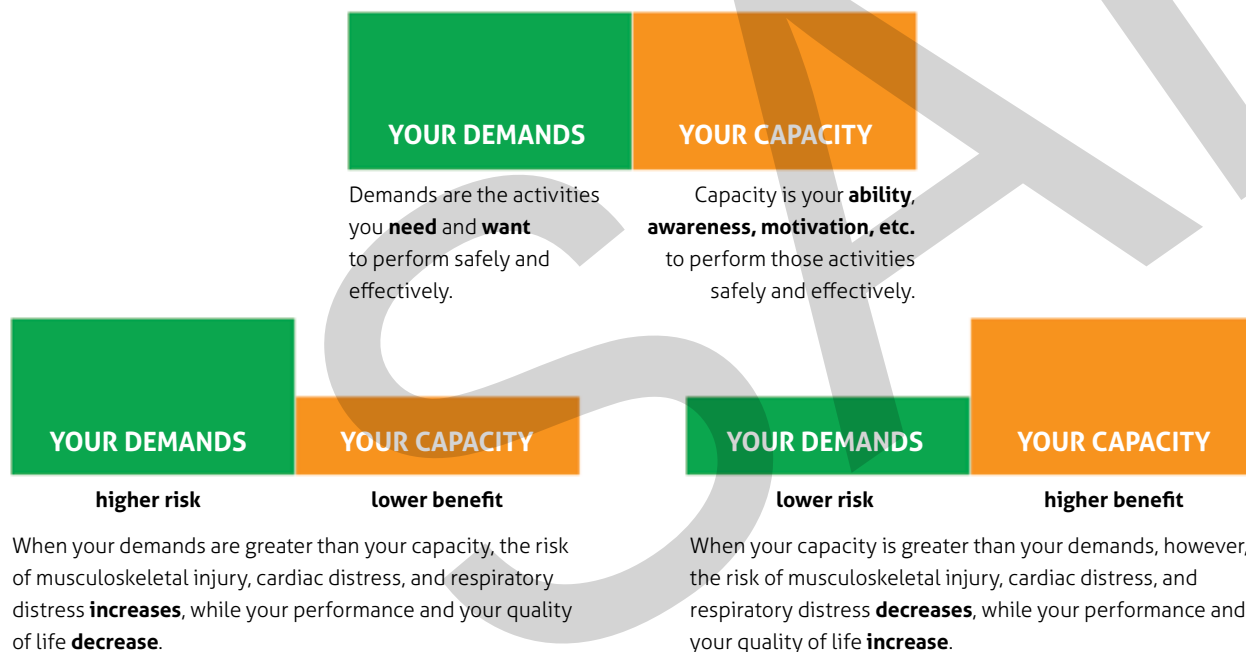
Balancing Our Demands and Capacity

How we move is central to balancing our capacity and demands. This perspective is known as the **demands capacity framework**. To perform at our best and maintain good health both today and in the future, we must have the capacity (e.g., the awareness, motivation, and ability) to handle the demands of our lives—the activities we need or want to perform on a daily basis.

For students, teachers, truck drivers, gardeners, athletes, grocery store clerks, and everyone else in our society, physical activity is a part of daily life. We all move differently as a result of the differing contextual factors just described. People working in a grocery store, for example, need to push carts and squat down to stock shelves. People working in a gardening store need to lift heavy bags of soil and carry trays of plants to customers' cars. Farmers need to push and pull equipment and machinery. Table tennis players need to lunge and rotate their shoulders, elbows, and wrists.

Regardless of what activities define your daily life, all the activities you want or need to do reflect your *demands*. *Capacity* is a term used to describe your confidence, motivation, strength, endurance, flexibility, and so on—in performing a physical activity safely and proficiently.

Broadly speaking, the physical activities we participate in each day—playing video games, biking, exercising, walking, carrying a backpack, and so on—all impose demands that will influence our safety and effectiveness. These demands might involve physical, cognitive, affective (emotional), or behavioural components, or a combination of these components.



Building capacity will improve our movement competence

It is well established that becoming a confident, competent mover will improve not only your performance but also your overall health. Everyone, regardless of age, skill level, ability, or interests, should strive to build the capacity to balance the demands of daily life—all the activities that we need or want to perform with relative proficiency and enjoyment.

This implies that if your capacity exceeds your demands, you will be able to perform anything you want or need to do safely and effectively. But what if your demands exceed your capacity—if you want or need to do more than you can handle—so that you cannot perform all of the activities that appeal to you?

For example, you might want to try paddleboarding but lack the range of motion, strength, or endurance to perform the required movements. Or maybe you have the required physical ability but lack the awareness to move in a safe or effective manner. If you were to attempt paddleboarding, the demands would exceed your capacity, and you would likely fail or hurt yourself.

It is important to remember, however, that failure is a vital part of success. Failure can help to highlight specific areas of our capacity that we need to improve so we can learn to perform all the activities that are important to us. The key is to view failure as a form of valuable feedback and not as a final result.

If your demands exceed your capacity, how can you respond? You might decide to figure out how to increase your capacity so you can move as required in order to paddleboard without falling off the board or injuring yourself. You need to have a level of challenge that *exceeds* your capacity in order to *improve* your capacity. This might mean setting a challenging goal for yourself and adopting a “can do” attitude, also known as a “growth mindset.” You might realize that you need to be shown how to paddleboard by someone who is proficient at performing this activity and then to practise the required movements yourself.

Awareness can be a powerful first step toward increasing your capacity!



Section 2.1 Review

- 1 Give one example of a personal, environmental, and task-specific factor that will influence how you move while performing a chore, sport, or other activity.
- 2 Describe your demands—the physical activities you need or want to perform each day.
- 3 List two ways in which you could increase your capacity to handle your demands better.

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2.2 Movement Features and Patterns

Regardless of your age, developmental stage, interests, or daily routine, you probably want to improve your physical performance in some areas for one reason or another. Your everyday physical activities might vary from hiking to playing sports, to regular chores such as washing dishes or doing laundry. Many of us want to progress from simple to more complex activities for a variety of reasons, and as the demands of daily life increase, we strive to increase our capacity to meet those demands.

Building our capacity to move competently begins with awareness. Have you ever thought about how you jump, run, walk up the stairs, get up off a chair, or perform other everyday activities? For instance, do you always bend at your back or your hips when you pick something up off the floor? Developing the awareness to assess your own movement can be sharpened by understanding a few key attributes or “movement features” that will be examined in this section.



The Seven Key Movement Features

As a first step in improving your movement competence, it is important to know which features of a movement pattern matter. When performing activities such as jumping for a rebound, lifting a backpack, or sitting in a chair while studying, which aspects of your movement will influence your performance, your susceptibility to injury, or your long-term health?

Paying attention to **the seven key movement features**, which are shown and described in detail on the following page, can help you build your capacity and enhance your overall quality of life.

Simply becoming aware of these key movement features could change your movement behaviours, alter your daily movement habits, and improve your enjoyment of life.

The **seven key movement features** are

- 1 Knees in line with the feet and hips
- 2 Body weight centred over mid-foot
- 3 Normal low back curvature (avoid rounding and arching)
- 4 Normal low back curvature (avoid bending sideways—the shoulders and hips remain parallel)
- 5 Shoulders and hips rotate together
- 6 Shoulders down and away from the ears
- 7 Shoulders back (elbow and shoulder move in the same direction)

Improving your performance and reducing injury risk

Integrating or “ingraining” the seven key movement features into your daily activities so that they become habits will go a long way to preventing injuries to your joints, bones, muscles, ligaments, and tendons.

Integrating the seven key features into your daily routines will also help you improve your performance.

These key movement features are relevant to everyone, everywhere. They provide a common framework that you, your friends, and your family can use to understand and improve your movement competence in ways that are meaningful to you. Take a look at the next page to see these seven key features in action.

Every time you lift an object from the ground, for example, the importance of the seven key features comes into play.



Movement Matters!

The Seven Key Movement Features

KNEES



1 In line

Knee in line with hip/foot

What to look for:

- 1 Body from the front
- 2 Line from hip to toes
- 3 Position of knee in relation to line

- Medial to the line
- **On the line**
- Lateral to the line

Coaching tips:

- Grip the floor with the toes
- Push the knees out
- Point knees in direction of toes



2 Mid-foot

Body weight over mid-foot

What to look for:

- 1 Body from the side
- 2 Line through the middle of foot
- 3 Position of weight in relation to line

- In front of the line (toes)
- **On the line (arch)**
- Behind the line (heel)

Coaching tips:

- Push through the floor
- Grip the floor with the toes
- Hinge at the hips, lean forward

LOWER BACK



3&4 Straight

Normal low back curve

What to look for:

- 1 Body from front, back, or side
- 2 Two lines through hips/upper back
- 3 Distance between the two lines

- Closer than standing
- **Same as standing**
- Farther apart than standing

Coaching tips:

- Stiffen trunk
- Let trunk move with hips
- Dowel touches head, back, hips



5 Aligned

Hips and shoulders aligned

What to look for:

- 1 Body from front, back, or side
- 2 Two lines through hips/upper back
- 3 Alignment of the two lines

- Shoulders rotate more than hips
- **Shoulders in line with hips**
- Hips rotate more than shoulders

Coaching tips:

- Use upper/lower body together
- Rotate with hips
- Practice with one hand

SHOULDERS



6 Down

Shoulders away from ears

What to look for:

- 1 Body from front, back, or side
- 2 Two lines through ears/shoulders
- 3 Distance between the two lines

- Closer than standing
- **Same as standing**
- Farther apart than standing

Coaching tips:

- Elbows down/close to body
- Treat motions as push and pull
- Hold shoulders back



7 Back

Elbow and shoulder together

What to look for:

- 1 Body from front, back, or side
- 2 Line from shoulder to elbow
- 3 Movement at both ends of line

- Move in opposite direction
- **Move in same direction**
- Only one end moves

Coaching tips:

- Rotate thumbs out when pulling
- Pull shoulder blades together
- Limit how far elbows are pulled back

Fundamental Movement Patterns

Have you ever wondered why some elite or professional athletes have enjoyed such long careers and have managed to avoid career-ending injuries, while others have not? Similarly, have you ever wondered why some of your adult role models have managed to stay fit, healthy, and injury-free, while others have experienced poor health or been hurt?

The answers to these questions are complex. However, one potential reason for many of the success stories you hear about is that these individuals are often very competent movers.

Learning to move better

The good news is that we can all learn to move better, regardless of our life's pursuits and current abilities. We can learn to move more competently at school, at home, at work, and at play. In order to become better movers, however, we need a way to categorize or describe the various recreational, sport-related, or work-related activities that we perform.

All human movement, no matter how complex, involves variations of general or **fundamental movement patterns**. These patterns are commonly listed as:

- push
- pull
- squat
- lunge
- hinge

These patterns can be used to describe and help us better understand activities that we perform daily, such as tying our shoes, lifting objects, and playing our favourite games and activities. We push or pull to open doors, and we squat or lunge to pick up objects from the floor. We hinge every time we bend at the waist.

By reading what follows, you will learn how these fundamental movement patterns give us a framework for describing, observing, and evaluating how we perform the complex skills involved in our sport-, work-, or life-related activities. Whether you wish to be an elite athlete or to perform everyday tasks safely and efficiently, learning how to perform these patterns properly—in particular, by maintaining the seven key features—will help you attain your goal.

The Benefits of Moving Well

People who move well know how to recruit their muscles to move their joints in a manner that reduces the incidence of injury and improves their performance. Moving well enables them to do the things they love to do in ways that are pain- and injury-free. Who among us doesn't want that?

PUSH

Push

A **push movement pattern** often involves moving an external object away from your body or pushing your body away from an object or surface, as in a push-up. Most descriptions of pushing as a fundamental movement pattern refer to the upper body only.

In performing a push pattern, however, actual movement is not always necessary. A front plank is a push pattern, for example, as is holding a picture up against a wall before hanging it.

The push-up is an effective exercise for improving core stability and upper-body pushing strength. Push-ups can strengthen the chest, shoulders, triceps, and abdominal muscles (see Chapter 4).

The push-up is also an excellent exercise for improving control of key feature number 3, which focuses on keeping your lower back straight and avoiding arching or rounding.

Properly performed pushing exercises require precise levels of motor control, functional strength, and body alignment that can be achieved through practice and repetition.

Pushing a small suitcase overhead to stow it away in a closet and pushing a grocery cart, lawnmower, snow shovel, or a snow blower are examples of pushing movements used in daily life.

Pushing tactics in football and rugby are examples of pushing movements used in sports. When an offensive lineman pushes against a defensive lineman to create space for a throwing or running play, the offensive lineman is using a push pattern.



Pull

A **pull movement pattern** is the opposite of a push movement pattern: generally, you pull an object toward your body, or pull your body toward an object. Like pushing, pulling is typically used to describe the upper body only.

As for pushing, movement is not necessary to use a pull movement pattern. Pulling is the act of contracting against a load or resistance. Hanging from monkey bars, performing an isometric biceps curl, and carrying groceries in both hands are all examples of a pull pattern.

A single-arm tubing row, shown here, is a variation of a pull pattern. This exercise can help improve control of key feature number 7—keeping the shoulders back and elbow and shoulder aligned in the same direction.

As everyday examples, we use a pull pattern when we lower window shades and pull open fridge doors. We use a pull pattern when kayaking, sailing, wind-surfing, and rock climbing. Shooting a bow and arrow involves both pushing and pulling patterns.



PULL

Squat

Squat

Frequently, a **squat movement pattern** requires lowering your body weight by bending your ankles and knees. A squat movement pattern is unique to the lower body compared to pushing and pulling.

Doing a squat exercise like the one shown here builds overall leg strength, especially in the muscles that affect the hips, knees, and ankles.

To perform a squat exercise properly, start by using your own body weight as resistance. You can then increase the level of difficulty by adding further resistance using dowelling, dumbbells, barbells, or kettlebells.

This exercise can help improve control of key feature number 2—body weight over mid-foot—to enhance performance and reduce risk of injury.

We use a squat pattern every time we get in and out of a car, sit down, and get up off a chair. Baseball catchers, wrestlers, and football players use a squat pattern when performing their sport-specific activities. Jumping for a rebound in basketball is a squat pattern, as are all two-foot jumps. Snowboarding, skateboarding, and surfing all involve a squat pattern.



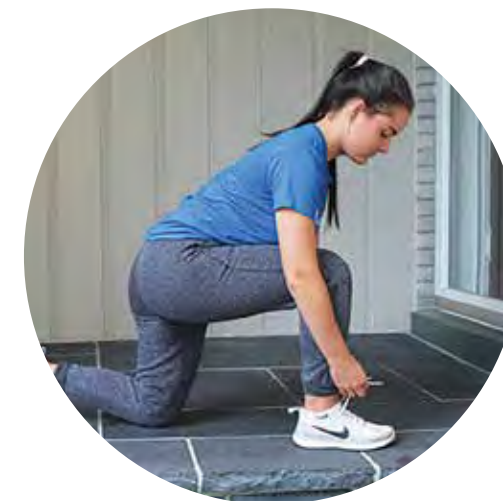
Lunge

The **lunge movement pattern** generally involves one leg extended or bent in front of the body while the other leg is extended or bent behind the body. This pattern includes any form of gait: walking, running, skipping, and so on. Like the squat pattern, the lunge pattern is specific to the lower body.

You can do a lunge exercise in any direction—forward, backward, and sideways. The forward lunge exercise, shown here, is an excellent way to build strength in the muscles that affect the hips, knees, and ankles, depending on how it is performed. Safe and effective performance of a lunge exercise involves integrating and maintaining control of key feature number 1: keeping your knees in line with your hips and your feet.

Activities such as gardening, tying your shoelaces, and picking something up off the ground all involve the lunge pattern. Key feature number 1 is relevant here: whether you are running after a ball or cross-country skiing, your knees should always be in line with your hips and your feet.

Pitching in baseball, hitting a ball in cricket, and performing a dig in volleyball all require players to use a lunge pattern.



Lunge

Fundamentals

Hinge

The **hinge movement pattern** (also known as the “hip hinge pattern”) describes any movement that involves flexion and extension of the hips. Ideally, the spine will be kept in a neutral position to prevent injury, maximize performance, or improve quality of life.

For example, a basic understanding and use of this pattern can help prevent lower back injuries when you are picking objects off the ground, going from a sitting position to a standing position, moving furniture, or even brushing your teeth. Think back to key features number 3 (no arching or rounding), number 4 (no lateral bend), and number 5 (no twisting).

The hip hinge is important for performance as well. It is the basis of the athletic-ready stance, it is critical to the vertical jump, and it is the dominant pattern in sports such as rowing. Track athletes also begin their race by adopting a hinge pattern to position themselves in the blocks. Baseball players hinge when accelerating forward to chase down a ground ball. Basketball players hinge when dribbling the ball to avoid defenders.



Section 2.2 Review

- 1 Why would you encourage someone to maintain the seven key features while performing daily activities?
- 2 Why is it helpful to categorize our activities by key feature and movement pattern?
- 3 Give an everyday example that involves each fundamental movement pattern.

Fundamental movement patterns are everywhere! This student is using a **pulling** and a **pushing** movement pattern to place his books into his locker.

2.3

2.3 Learning Movement Skills

How do we learn, and then refine or improve, our movement skills?

A **skill** is the ability we have developed to perform an activity well, especially because we have practised it. Learning a skill usually involves a gradual rather than an abrupt transition or change in the learner's performance.

The Stages of Learning a Skill

Whether in physical activities, sports, or any other area, experts such as teachers, coaches, and psychologists typically break down learning a skill into three stages:

- 1 **cognitive**—understanding the basics of the skill in question
- 2 **associative**—refining the skill by learning from your mistakes
- 3 **autonomic**—performing the skill as though it is almost automatic

These stages provide insight into what is involved in learning and improving skills. In real life, these stages are not separate and discrete; they overlap and often do not follow an exact progression.



Building skills, building proficiency

Let's apply these stages to the example of learning a tennis serve.

- **Cognitive stage.** Often we are shown (or we read about) what is involved in performing a proficient tennis serve, and then we try it out. Trying it out reinforces our understanding so that we form a general idea of what is involved in a tennis serve. This thinking process occurs in the early stages of developing any skill, from learning a gymnastics tumble to learning to play chess to playing a new piece on a musical instrument.
- **Associative stage.** Next, we practise the skill continuously, preferably with a mentor, coach, or teammate, until the technique has been learned. This can take a long time, depending on the level of complexity of the skill. This stage involves not only practice but also reinforcement and continuous rethinking. On the other hand, we sometimes end up learning a skill on our own through trial and error, exploring a range of movement solutions to achieve a specific task objective (in this case, putting the tennis ball in the square on the other side of the net).
- **Autonomic stage.** Finally, the skill begins to become almost automatic. At this stage, not a lot of conscious thought goes into performing the basic action itself, although other thoughts about speed and placement may come into play on the tennis court. The person is able to "just do" the skill. Many highly skilled tennis players in this final stage of learning can serve with great precision almost automatically.

It is important, however, to distinguish between "automatic" and "good." Simply because someone has rehearsed a particular skill for years does not always mean that they are proficient. Sometimes the movement skills that have been rehearsed are inefficient. This is why so many of us can develop "bad habits" when learning movement skills. Repeatedly performing a skill in an incorrect manner (because it has become automatic) can lead to injury and less-than-perfect performance.

This is where the seven key features and the fundamental movement patterns can play a beneficial role. They can help us correct incorrect practice by increasing our awareness of our own movement behaviours so we can make conscious improvements. Perfect practice makes perfect!

If you wanted to learn archery, what specific things would you need to learn, and how would you go about learning them? The skills required to be a proficient archer require the same stages of learning (cognitive, associative, and autonomic) described here, along with awareness, practice, and perseverance.



Types of Movement Skills

Many movement skills fall into one of three categories: stability (in this context, whole-body stability), locomotion, and manipulation:

- **Stability** skills involve the body balancing in one place (static balance; e.g., standing on a balance beam) or balancing in motion (dynamic balance; e.g., doing a rotation on the beam).
- **Locomotion** skills involve the body moving in any direction (e.g., walking, running, jumping, and hopping).
- **Manipulation** skills include throwing and catching skills or skills related to striking with the hands, the feet, or an implement (e.g., kicking, volleying, batting, and dribbling).

Refining your skills

Learning certain movement skills and becoming reasonably proficient at them do not happen without effort. To gain a level of proficiency means going through the stages of acquiring a skill at the pace that makes the most sense. Often, the key to success is practice and more practice.

Depending on the skill, the learning process will take time. Maximizing how that time is used lies behind the notion of **deliberate practice**.

- Deliberate practice is purposeful and systematic.
- It involves focused attention and having a specific goal of improvement in mind.
- Deliberate practice is mindful repetition.
- It involves constant feedback, thinking, and reflection about how to improve.

Again, this is where the seven key features can play a helpful role. For example, using key feature number 1 (knees in line with hips and feet) can prevent the knees from collapsing when a jump is performed.

No one truly knows the influence of human genetics on performance. What we do know for sure is that genes do not entirely determine performance. It is similar to being dealt a hand while playing cards. You will have a stronger chance if you happen to be dealt a better hand, but you also need to play the hand well to win. Deliberate practice is about learning to play well with whatever “innate talents” you may have.

It would be difficult to find anyone who has achieved a level of skill proficiency in any field who has not put in the time. Wayne Gretzky, Canada’s most famous hockey player, freely acknowledges that he was not naturally gifted in terms of size and speed. He has said that everything he did in hockey he worked hard to achieve. As he put it, “the only way a kid is going to practise is if it’s total fun...and it was for me.”



Ultimate is just one example of a game that involves moving from stability to instability, to locomotion, and to manipulation all at once.

The importance of feedback and support

In many cases, you cannot learn a skill entirely on your own; at least, it will be more difficult to do so. You often need feedback and support from your classmates and from your teacher or coach. This is especially true when learning skills related to physical activities, games, and sports.

Teachers and coaches have vast experience that they can share with you. They know how to break a skill down into its component parts (key features, patterns, and/or phases, if applicable), how to help you improve your movement competence, and how to help you stay motivated.

There are also technological tools at your disposal to provide feedback. Slow-motion video, for example, is relatively inexpensive yet sophisticated. You can record yourself or a friend performing a skill and analyze your movement to see what is going well or not so well. Knowing what to look for—starting with the key features—and having a strong support network make learning with such tools easier and more fun.

Teachers and coaches are there to support your goals, assess your skill development, and help you stay motivated.





The Phases of Performing a Skill

Not all movement skills can be broken down into distinct phases. Riding a bicycle and brushing your teeth are but two examples. However, breaking a discrete movement skill such as throwing or kicking into its various phases is a useful way to identify your strengths and weaknesses with a view to further improvement. Teachers and coaches do this all the time.

A teacher or coach will focus on how a student performs during each phase of a skill, identify strengths and weaknesses, and offer advice as to what the student can do to execute that phase more effectively.

The four **phases of a movement skill** are usually identified as:

- the preparation phase
- the force production phase
- the critical instant phase
- the recovery and follow-through phase

Let's briefly look at each phase in turn, continuing with the tennis serve as well as a few other examples.

The preparation phase

The preparation phase involves getting a secure footing and a firm grip on the racquet, then beginning to bring the joints and muscles into action. The quadriceps and gluteal muscles of the hip and thigh play an important role in generating power on the serve, as does the swinging of the racquet. "Winding up" is another term for the preparation phase in tennis.

The force production phase

Power on the tennis serve is produced from the hips, legs, shoulder, elbow, and wrist action occurring in a well-coordinated sequence. Uncoiling the various positions reached in the preparation stage and timing them accurately are the keys to a powerful serve.

The critical instant phase

In a tennis serve, the "critical instant" is when the entire wrist finally snaps into play and the tennis ball is struck—all the momentum built up in the swing is transferred to the tennis ball at that point. In a jump shot in basketball, the critical instant is when the ball finally leaves the fingers. For a slap-shot in hockey, the critical instant is the moment when the hockey stick makes contact with the puck.

The recovery and follow-through phase

Typically, experienced tennis players will have both feet off the ground when they finally strike the ball on the serve. Finishing the serving motion, landing, and then regaining balance are important aspects of the recovery and follow-through phase. Coaches and teachers will be alert to this phase, providing advice to ensure that their player is ready for the return shot.

Movement Skill Transferability

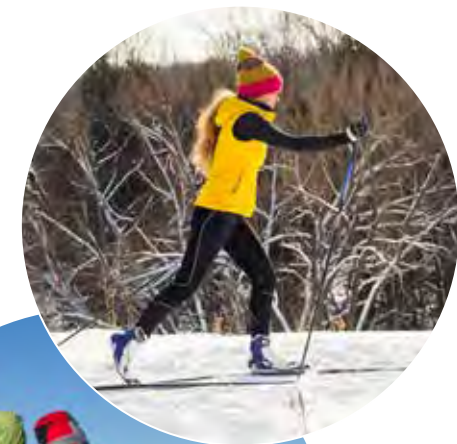
Many people seem able to acquire a new movement skill almost naturally. More often than not, this is because they have built on the component parts of a skill—key features along with fundamental movement patterns—that then transfer readily to a similar skill. For example, a skill they have learned that relies on a squat pattern may be relevant in the context of another activity. Therefore, rehearsing the first skill repeatedly may also influence the performance of the second skill.

Skill transferability can occur when activities involve similar fundamental movement patterns and key features. For example, the pushing, pulling, and lunging movement patterns used in snowshoeing and cross-country skiing are quite similar to each other. Both activities also involve controlling the position of the knees in relation to the hips and feet (key feature number 1). Thus, the skills involved in these two activities are likely to be transferable.

Skill transferability is more likely to take place across activities of a similar nature, such as the net games of volleyball and tennis. The tennis serve and the volleyball overhand serve are different, but there are obvious similarities. Ice hockey and field hockey are also quite different, but they are similar in many respects.

The fundamental movement patterns (push, pull, squat, lunge, and hinge) prepare us to perform other activities that involve these patterns. These fundamental movement patterns are the component parts of all the movement skills that we will perform in sports and in other contexts.

Experiencing a variety of fundamental movement patterns is especially important in the younger years, but we can benefit from such experience at any stage of our lives.



You can see skill transferability in action when you compare, for example, a volleyball serve to a tennis serve or snowshoeing to cross-country skiing.

Fundamental Sports Skills

Sport for Life has identified a series of **fundamental sports skills** that they believe are important to learn, especially in the early years. The hope is that once a certain level of competence has been established the following skills become transferable:

- throwing
- catching
- striking
- running
- jumping
- kicking
- agility, balance, and coordination (“ABCs”)

Being competent in these skills may help to facilitate your ability to participate in a wide range of sports and activities. Gaining proficiency in performing these skills is part of becoming an all-round, competent mover.

Sport for Life has created a list of suggested sports and activities that showcase skill transferability. Can you think of others?



If you can **run** you might enjoy

sepak takraw
soccer
basketball
volleyball
track & field
squash
rugby
badminton
tennis
cricket



If you can **throw** you might enjoy

baseball
softball
bowling
soccer
goalball
football
rugby
tchoukball



If you can **swim** you might enjoy

swimming
diving
water polo
scuba diving
kayaking
sailing
surfing



If you can **wheel** you might enjoy

bocce
basketball
rugby
racing
power soccer
curling
tennis

Building Personal Confidence

Personal confidence is an important part of tackling new skills of any kind. Some people find that competence in one skill can increase their confidence in trying to learn a related skill or an entirely new one.

Personal confidence comes from knowing how to do something reasonably well—something to build on, as it were. Once you have gained a degree of proficiency in a particular skill, you may find that you feel confident enough to go on to learn other skills and perhaps help classmates, friends, or family members learn those skills as well.

Consider the following example. The physical ability to throw an effective underhand pitch in softball may not directly transfer to performing a jump-shot in basketball. Nevertheless, the confidence that comes from being able to throw an underhand pitch might give you the confidence to approach the task of learning a jump-shot and becoming proficient at it.

On the other hand, some people have all the confidence in the world but lack competence. Confidence can sometimes actually impede the development of competence. This accounts for why people get hurt on occasion while exercising or playing sports. Conversely, some people have developed a lot of competence but lack the motivation or the confidence in their abilities to engage in a sport, game, or activity—perhaps because they were told at an early age that they were not good enough.

Confidence and competence emerge by focusing on the things that really matter—starting with key features and fundamental movement patterns.

Section 2.3 Review

- 1 What are the three stages of skill acquisition? Describe each stage with reference to learning a new movement skill.
- 2 Watch a classmate perform a sport skill. Analyze your classmate’s movement during each phase of the skill.
- 3 Give an example of a movement skill (sport or otherwise) that can readily transfer to a different activity.

Acquiring any skill, from the least to most complex, may give you the confidence to tackle acquiring new ones.



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2.4 Movement Principles

How can you become a more competent mover? To answer this question, let's review what you have learned so far.

- You have looked at the concepts of demands and capacity in order to provide the context for why movement matters to you. Demands tell us what our lives look like, and capacity tells us whether we have the ability, motivation, awareness, and so on to perform activities safely and effectively.
- You have learned about observing and assessing your own and other people's movements in terms of seven key features and movement patterns.

This section describes three **movement principles** that you can apply to improve the way you move. Knowing about and applying these principles can help you build your movement competence in various contexts—daily life, school, sports, or work—depending on your current capacity and place on your physical literacy journey.

Before looking at the three movement principles, let's start with a few general recommendations.

Improvement is all about focus

Improving our movement competence involves exploration and figuring things out—giving ourselves opportunities to feel what it is like to experience movement that is proficient, fun, and enjoyable. We can get better at movement through exposure to a wide variety of experiences and trying out different ways of moving. However, we can also develop some bad habits, such as rounding or arching our backs when lifting.

Here are some recommendations for reinforcing the seven key features and building a “movement library” that can be applied to any number of activities in sport, work, or life.

- It is important to challenge yourself—but start slowly. Begin with small steps and progress gradually toward your goals.
- Focus on movements, not muscles. Develop an appreciation for how a movement looks before thinking about the muscles involved. Which muscles are involved will depend on how the movement is performed.
- Always link your movements back to the seven key features and fundamental movement patterns. Check to see whether you are maintaining the relevant key features every time you move.
- Train with a purpose. Focus on what you really want to do. Revisit the demands that life places on you, and train not just for the sake of training, but with those specific demands in mind.
- Improve the transfer of movement skills by emphasizing the seven key features. Keep going back to those basics and keep it simple. Become aware of the seven key features in everything you do so they become a habit.
- Focus on the process and cultivating enjoyment while developing physical literacy. Ultimately, it is all about having fun!

While there are a number of movement principles that shape the way we move, knowing what to look for—the seven key features, for example—is a great place to start. Remember that it is important to keep your attention focused first and foremost on what you look like when you move and on the factors that influence how you move. In addition to the person, the environment, and the task, these factors always include the seven key features.



Movement Principles

Principle 1: Stability increases as the centre of gravity becomes lower, the base of support becomes larger, the line of gravity moves nearer to the centre of the base of support, and the mass becomes greater.

Maintaining Stability

Stability, in the context of physical activity, refers to one's body being in a state of balance. Even walking requires stability. We all need to maintain and control our balance, or whole-body stability, to perform tasks and participate in physical activities and sports.

Among other things, stability depends on these four factors:

- **Mass:** the quantity of matter contained within an object or body
- **Centre of mass:** an imaginary point around which an individual's mass is concentrated. (When we stand upright with our arms hanging at our sides, our centre of mass is located in the middle of our bodies at about the level of the navel.)
- **Base of support:** the supporting area beneath an object or body
- **Position of the centre of mass:** a position relative to the base of support as defined by the line of gravity—an imaginary vertical line that passes through the centre of mass to the ground

In general, whole-body stability increases when *mass* increases, because the more mass an individual has, the greater the resistance to going from a state of rest to a state of motion, or from a state of motion to a state of rest. This accounts for the large amounts of *mass* that often characterize the bodies of wrestlers and offensive and defensive linemen in football.

When lining up prior to the snap of the football, linemen crouch to lower their *centre of mass*. This makes the linemen more stable and better able to stand their ground when they are blocked or contacted by oncoming opponents. The *stability* of the linemen is also enhanced when they broaden their *base of support* by crouching down and putting one hand in contact with the ground. This is called a three-point stance.



Stability and instability work together

Lowering the *centre of mass* and keeping it within the *base of support* improves the chances that a wrestler will be stable when contacted by an opponent. If the position of the *centre of mass* moves outside the *base of support*, however, it becomes much easier for an opponent to knock the wrestler off balance.

Stability and instability affect how dancers, surfers, gymnasts, skateboarders, cyclists, circus performers, skaters, and many others move. Here are two examples.

- **Surfing.** A surfer will be most stable when she bends her knees, crouches low, and keeps her feet wide apart, thus lowering her centre of mass while producing a stable base of support for herself.

If the position of the surfer's centre of mass moves, or is moved, outside the base of support, the surfer will find herself in an unstable position. Even a slight shift in the position of the surfer's centre of mass will cause the surfer to fall off the board.

- **Cross-country skiing or sit-skiing.** If you are cross-country skiing or sit-skiing, you need to work constantly to maintain your balance. As you change speed, turn, and react to the unevenness of the ground, you have to absorb a variety of forces and redistribute your body weight. The most important factor to consider is the effect of your body's centre of gravity on your stability.

When cross-country skiing, keep your knees slightly bent and your centre of gravity as low as possible and directly above your point of contact with the ground. Otherwise, you will lose your balance and take a spill!

When this surfer needs to gain or regain her balance, lowering her body's centre of mass over a wide base of support helps to increase stability as she rides the waves.





Types of Movement at Joints

The other two movement principles you will learn about involve joint movements. Movements at joints can be described in terms of the types of actions involved. Some of these terms—for example, flexion and extension—have become part of our normal English vocabulary. Other terms are more technical and are used mainly by teachers, coaches, and exercise professionals. Some of the more common terms used when describing movement at joints are explained below.

Flexion/extension

- **Flexion** is the action of bending at a joint such that the joint angle decreases. An example of flexion is when you bend your elbow to bring your palm up toward your face.
- **Extension** is the opposite of flexion. It occurs when you increase the joint angle. When you straighten your arm from the flexed position, you are extending your arm.

Abduction/adduction

- **Abduction** occurs when you move a body segment to the side and away from your body. An example of abduction is when you move your arm out to the side and bring it level with your shoulder.
- **Adduction** is the opposite of abduction and occurs when you move a body segment toward your body. You adduct your arm when you bring it back down to your side.

Supination/pronation

- **Supination** is rotating the wrist such that the palm of your hand is facing forward. When you catch a softball underhanded with one hand, you must supinate your wrist.
- **Pronation** occurs in the opposite direction of supination. When you dribble a basketball, you first have to pronate your wrist.

Dorsiflexion/plantar flexion

- **Plantar flexion** is also specific to the ankle joint. It occurs when you point your toes.
- **Dorsiflexion** occurs when you bend at the ankle to bring the top of your foot closer to your shin. It is essential when walking or jumping.

Inversion/eversion

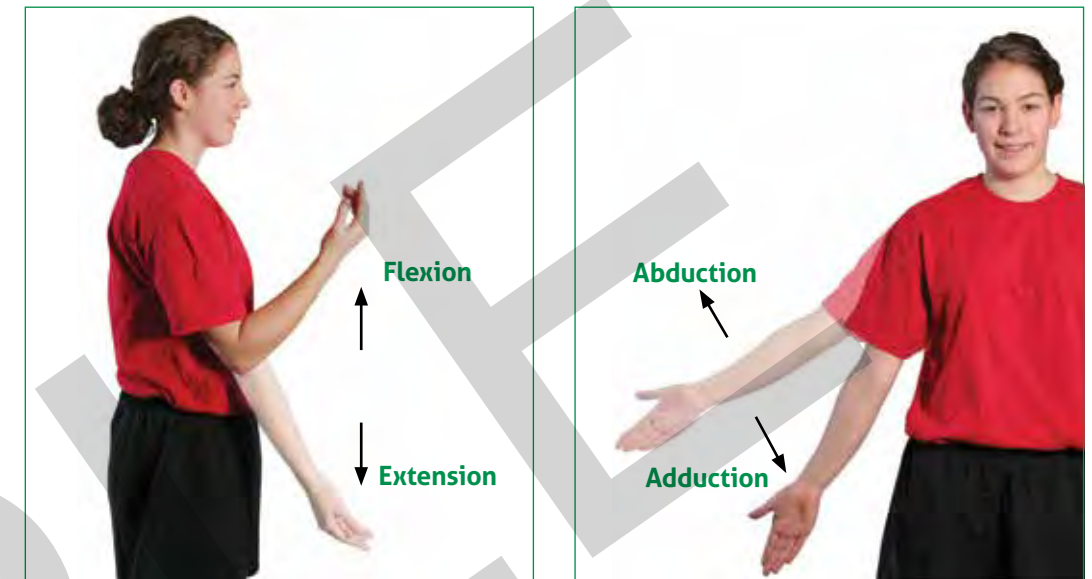
- **Inversion** is a result of standing on the outer edge of your foot. It is normally what happens when you twist your ankle.
- **Eversion** also is associated with the ankle joint. Eversion is a result of standing on the inner edge of your foot.

Internal rotation/external rotation

- **External rotation** results when you twist or turn a body part outward from the midline, for example when you turn your toes outward.
- **Internal rotation** results when you twist or turn a body part inward toward the midline, for example when you turn your toes inward.

Circumduction

- **Circumduction** is a combination of flexion, extension, abduction, and adduction all wrapped up into one movement. An example of this occurs in softball, when a pitcher throws the ball with a windmill action.



Movement Principles

Principle 2: The production of maximum force requires the use of all the joints that can be used.

Principle 3: The production of maximum velocity requires the use of joints in order—from largest to smallest.

Maximizing Effort

Muscles pull. They cannot push. Movement occurs because skeletal muscles cross over joints, the junction where long bones meet, creating lever mechanisms. These levers work just like any other mechanical lever, creating a “mechanical advantage” (leverage). It is these levers at joints that facilitate human movement.

Maximum effort requires that all the joints that can be engaged in a movement are used in performing that movement (**principle 2**) and that they are used in order from largest to smallest (**principle 3**).

Joint range of motion

The most common type of joint in the body is the synovial joint. This is the type of joint that allows the most movement. Typical synovial joints are the knee, the shoulder, and the ankle.

If the muscles and tendons around a synovial joint are injured (say, by inflammation) or if the joint is injured (say, by cartilage damage), **joint range of motion** is impaired. If the joint’s range of motion is restricted, full movement cannot occur.

High levels of physical force are generated at joints, and they are highly susceptible to injury. The leverage produced is a product of the length of the lever arm (the moveable bone), the angle of the muscle attached to the bone, and the strength of the muscle itself.

A complex movement (for example, riding a bike) involves a combination of movements involving several joints. To ensure a smooth and efficient movement and to achieve maximum effort, all the joints that affect the completion of that movement must be engaged, and ideally these joints must be in good working order with a full range of motion.

The javelin throw is an excellent example of maximum effort and range of motion. Here we see an athlete in the IAAF World Junior Championships that took place in Moncton, New Brunswick, in 2010.



Sequencing joint movements from largest to smallest (principle 3)

The third movement principle states that maximum velocity is achieved not only by using all the joints available but also by sequencing them in the right order, normally from largest to smallest.

Let’s look at a few examples in a little more detail to gain a better understanding of how this movement principle works.

- **Baseball.** When a baseball is released by a pitcher, the ball has a certain velocity. The sequencing of joint movements from largest to smallest (from legs, hips, and shoulder to elbow, wrist, and fingers) will increase the ball’s velocity as it leaves the pitcher’s hand. More coordinated sequencing of all the muscles involved in throwing the ball will therefore result in a faster pitch.
- **Weightlifting.** Let’s now consider Olympic weightlifting. The weight itself has a certain amount of *inertia* (the resistance of an object to any change in its state of motion). The weightlifter has to overcome this inertia in order to lift the weight. Poor technique (resulting from not using all the available joints or not sequencing them properly from largest to smallest) will mean that the lifter will not be able to produce enough effort to lift the weight. Being able to sequence joint movements so as to maximize effort will go a long way to helping the weightlifter overcome the inertia and lift the weight.
- **Bobsledding.** In Olympic bobsledding, the riders run alongside the sled, keeping their upper bodies stiff as they push with all their strength and weight against the sled before jumping on board. The better the pushing technique (the more they can engage their largest joints and then the smallest ones), the more forces generated by their lower bodies can be transferred to the sled. This transfer of forces will result in the sled gaining velocity as it starts its way down the hill.

If a joint’s range of motion is impaired, the full execution of the movement will be restricted, and maximum effort will not be achieved. Likewise, proper sequencing of joint movements, which improves with experience and practice, plays a critical role in allowing you to exert maximum effort in the execution of a movement.



Section 2.4 Review

- 1 Describe one way in which our need to balance could influence the way we move.
- 2 In trying to jump as high as possible, why would the range of motion and sequencing of your hips, knees, and ankles matter?
- 3 Describe one way in which each movement principle in Section 2.4 influences how you move.

2.5 Game Strategies and Tactics

This section looks at the components of a wide range of physical activities that take place in both indoor and outdoor environments. It describes some basic strategies and tactics that you can apply to enhance your movement competence, performance, and enjoyment if you choose to try these activities on your own or with friends.

An approach called **Teaching Games for Understanding (TGfU)** is based on the concept of teaching games—by actually *playing* games! Instead of learning isolated, sport-specific technical skills (related to volleyball or soccer, for example), you gain skills and knowledge that you can apply to different activities and sports by playing a variety of games associated with six different categories.







By offering choice and flexibility in how you and your friends practise and demonstrate movement skills, the **TGfU** approach aims to provide the best possible chance for the greatest number of participants to succeed.



Game and Activity Categories

The first four categories shown below represent games and activities that are similar in structure. If you learn the rules, basic strategies, and tactical solutions associated with one or more of these categories, you can participate in a wider range of games, activities, and sports of your choice. Your knowledge and skills will transfer from one activity to another within a particular category. For example, learning a tactic such as getting and retaining possession of an object can transfer to and from lacrosse, soccer, handball, water polo, and wheelchair basketball.

- In **territory activities**, participants invade an opponent's territory to score.
- In **net/wall activities**, a participant propels an object into space and tries to prevent an opponent from returning it.
- In **striking/fielding activities**, the participant strikes an object to remove it from defenders in the field.
- In **target activities**, a participant propels an object, preferably with a high degree of accuracy, at a target.
- In **individual activities** and **outdoor activities**, participants who are not drawn to team sports can develop fitness and movement skills related to control of body rhythm, movement aesthetics, creativity, sequencing, and stability, either individually or with others.

TERRITORY ACTIVITIES	NET/WALL ACTIVITIES	STRIKING/FIELDING	TARGET ACTIVITIES	INDIVIDUAL ACTIVITIES	OUTDOOR ACTIVITIES
					
Basketball	Badminton	Baseball	Archery	Aquatics	BMX biking
Handball	Pickleball	Choctaw stickball	Bocce	Athletics	Camping
Hockey	Sepak takraw	Cricket	Bowling	Dance	Orienteering
Lacrosse	Squash	Kickball	Curling	Gymnastics	Skateboarding
Soccer	Table Tennis	Softball	Darts	Judo	Skiing
Tchoukball	Tennis		Golf	Karate	Snowshoeing
Water polo	Volleyball		Horseshoes	Taekwondo	
Wheelchair basketball	Wheelchair volleyball		Shuffleboard	Yoga	

TERRITORY ACTIVITIES



Basketball

Handball

Hockey

Lacrosse

Soccer

Tchoukball

Water polo

Wheelchair basketball

Territory Activities

Territory activities are some of the most common games that we play. They include sports such as soccer, basketball, ultimate, ice hockey, field hockey, rugby, football, and lacrosse, just to mention a few. When Canadian-American Dr. James Naismith invented basketball in 1891, he did so by using his knowledge of various other territory games.

Territory games require many different types of manipulation skills. Players must be able to send objects away (throw an ultimate disc), receive objects (trap a soccer ball), and travel with objects (stick handle a field hockey ball) with accuracy to be successful. Many of the basic strategies and skills that are used during territory activities are very similar to each other—for example, carrying the ball, passing the ball to a teammate, and moving to an open space.

If you understand the basic rules, skills, and tactics of territory activities, it will make you better at the territory activities that you already play. It will also help you learn to play new territory games more quickly, as many of the skills and activities can be transferred from one game to another.

Basic strategies and tactics

Within territory activities, there are *three basic tactical problems* when your team is on *offence* (in possession of the object) and *three basic tactical problems* when your team is on *defence* (when the other team has possession of the object).

While *on offence*, teams are trying to

- maintain possession of the object;
- create space on the playing area; and
- attack the goal in order to score points.

Conversely, teams *on defence* are trying to

- regain possession of the object;
- defend space on the playing area; and
- defend the goal in order to prevent the other team from scoring.

Solutions to these tactical problems are very similar across the different territory activities. For example, a player with the object might **1)** try to shield it away from defenders, **2)** try to deke out opponents by moving around them, or **3)** make a short pass to a teammate who is not defended by an opponent. Offensive teammates who do not have the object can provide support by **1)** moving to an open space and **2)** communicating to the player who has possession of the object (“I’m open,” “Shoot,” “Pass”).

These solutions to the tactical problem of maintaining possession apply to almost every type of territory activity. If you understand the basic skills and the importance of providing support to your teammates in one sport, you will be a better player across all territory activities.



Here we see how a player attacks the goal in tchoukball, a territory team sport.

NET/WALL ACTIVITIES



Badminton

Pickleball

Sepak takraw

Squash

Table Tennis

Tennis

Volleyball

Wheelchair
volleyball

Net/Wall Activities

Net/wall activities are popular activities that include sports such as volleyball, badminton, tennis, table tennis, squash, racquetball, wall ball, and handball. For competition or recreation—from sandy beach volleyball, to outdoor tennis, to the local squash club—opportunities to take part in these sports are everywhere.

In all net/wall activities, players attempt to hit a ball or object over the net or against the wall in such a way that it cannot be returned by the opposing player. The basic tactical problems and their solutions remain similar.

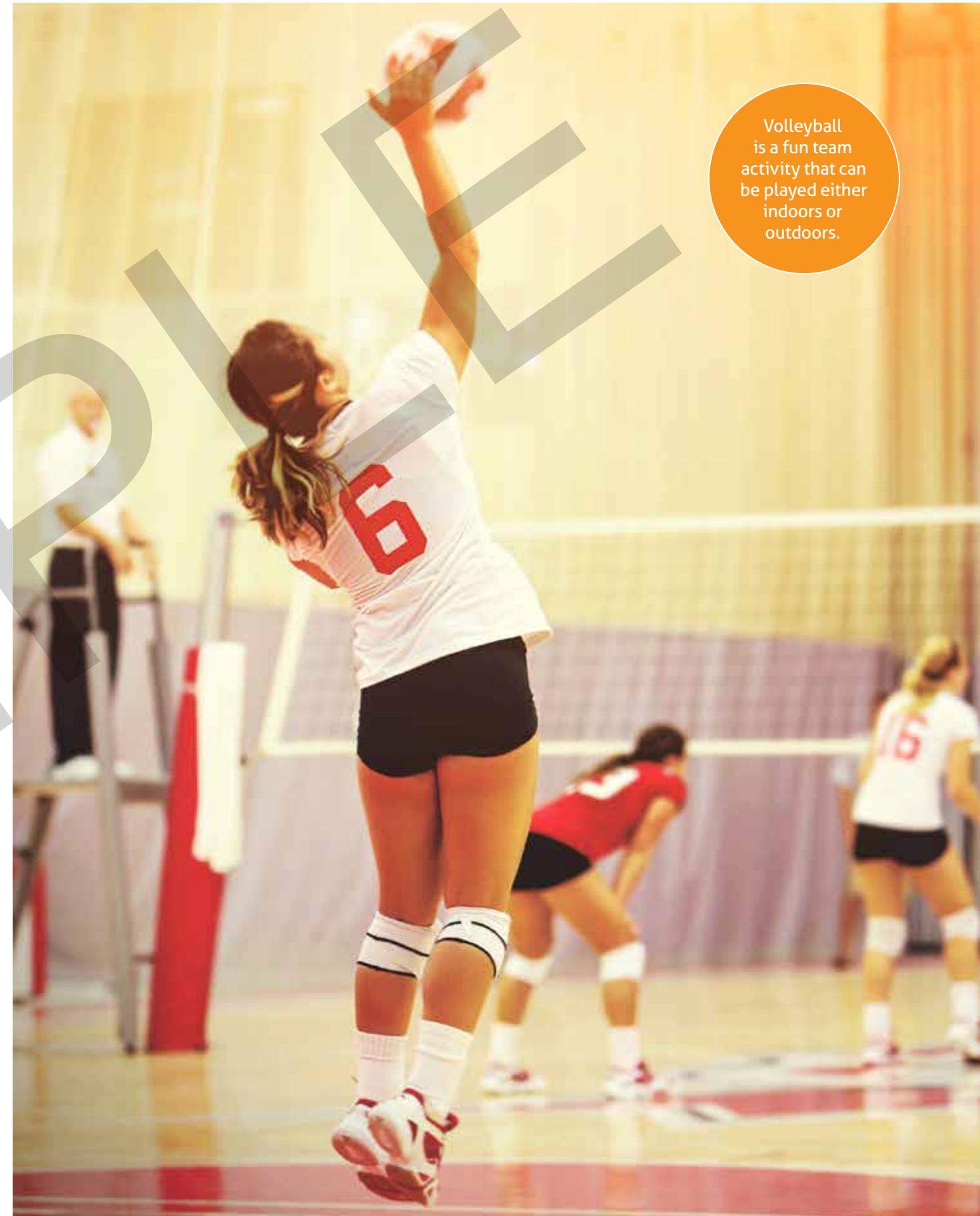
Net/wall games can be played either as a singles game or as a team game. In some net/wall activities (tennis, squash, racquetball), the ball is allowed to bounce once on the playing surface before it is returned. In others (volleyball, badminton, sepak takraw [or kick volleyball]), players try to prevent the ball or object from landing in their court.

The advantage of having a basic understanding of the *strategies* and *tactics* involved in one net/wall game is that many are common among all such games.

Basic strategies and tactics

To be successful in net/wall games, players and teams must be able to send an object over a net or against a wall into the open space. They must also be able to prevent their opposition from putting the object into the open space on their court.

- The fast-paced nature of net/wall games means that players need to use advanced sending-away skills. In addition to the initial contact with the ball or object (the serve), players must also be prepared to hit a fast-moving object from an opposing player (the return).
- Players use tactical skills (such as bumping, the overhand smash, the forehand, the lob, and the spike) to return objects. Players must also combine locomotor skills (such as running, jumping, diving, and blocking) with sending-away skills.
- Players soon realize that there are areas on the court from which it is difficult to return a shot. These areas include the sidelines, corners, spaces between players, and the front and back of the court.
- Players can use different tactics to exploit these areas. For example, a tennis player may use a drop shot to bring an opponent close to the net, which creates space at the back of the court. If the opponent is able to return the drop shot, the first player can then lob over the player so that the ball lands at the back of the court where the space was created.



Volleyball is a fun team activity that can be played either indoors or outdoors.

STRIKING/ FIELDING



Baseball

Choctaw
stickball

Cricket

Kickball

Softball

Striking/Fielding Activities

Striking/fielding activities such as baseball and cricket have become synonymous with many cultures around the world. Baseball, for example, is one of the most popular sports in North America. Similar games (stickball, slow-pitch, softball, and fastball) emerged in North America because of baseball's popularity. Although gaining popularity here, cricket tends to be the dominant striking/fielding game in countries such as England, Kenya, India, Pakistan, and Australia.

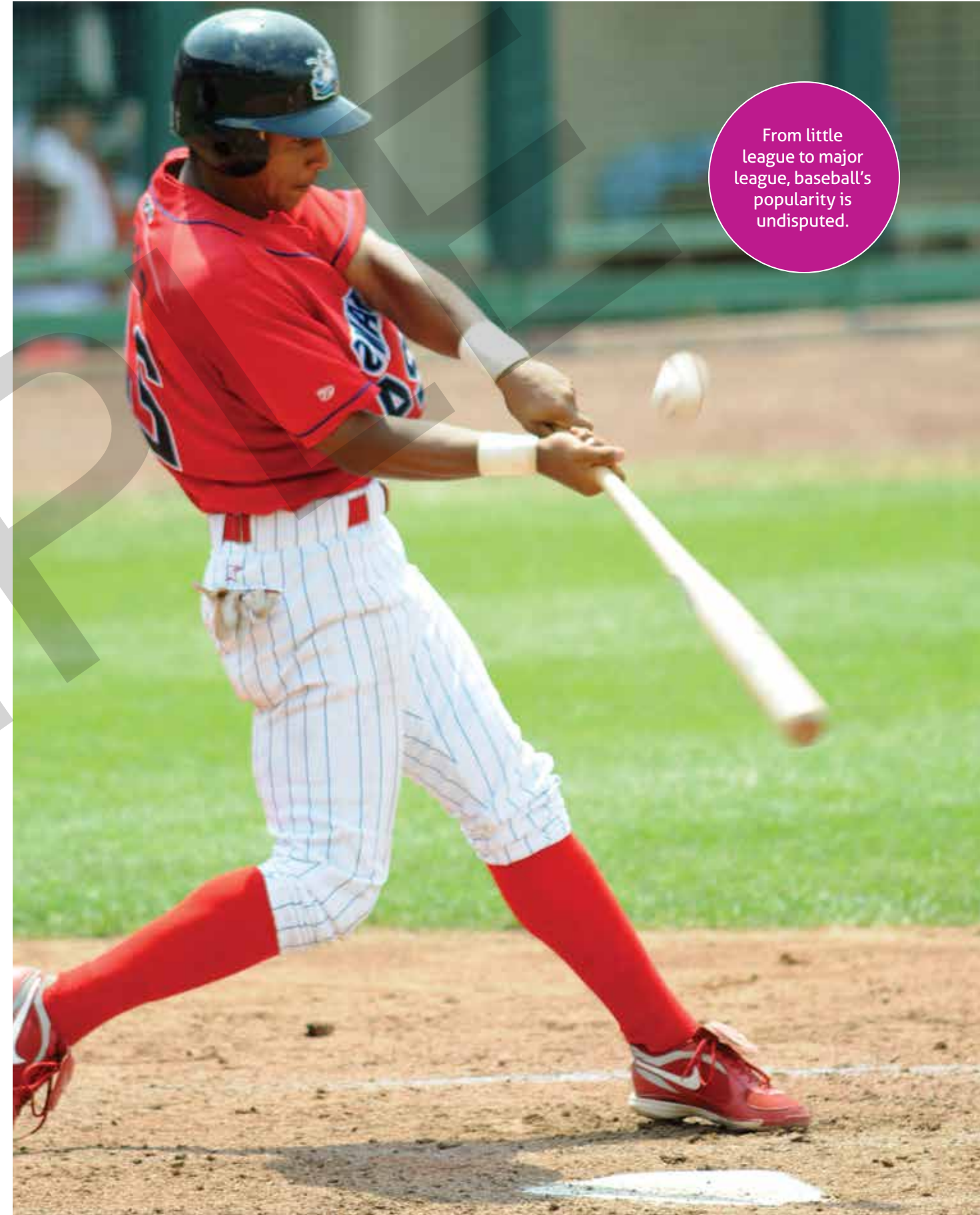
In striking/fielding games, a player on the defensive team delivers the ball to a player on the batting (or offensive) team. The batter attempts to strike the ball and score by running between safe areas (bases and wickets) without the ball being caught or by reaching the safe area before the defensive team can deliver the ball to a specified area.

Although striking/fielding games are played around the world, they are all bound by many common rules, skills, and tactics that, if understood, can allow us to play them all successfully.

Basic strategies and tactics

In addition to proficient locomotor skills such as running, sliding, and jumping, players must be able to send away objects and receive objects with proficiency when at bat and when in the field. Offensive players must be able to strike a moving ball.

- Defensive players such as the pitcher or the bowler will make hitting the ball difficult for the batter by throwing it quickly, changing its speed (a fast pitch followed by a slower pitch), changing its location (close to the ground, close to the batter, away from the batter), or changing its flight pattern (in baseball, a curve ball compared to a fastball).
- To score runs in striking/fielding games, players must be able to hit the ball into the open space and away from fielders. To prevent the batting team from scoring, fielders attempt to cover as much space as possible. Ultimately, fielders try to position themselves so that they are able to catch the ball in the air.
- When a ball does hit the ground, fielders must decide on where to throw the ball. In baseball, for example, sometimes this is an easy decision (no base runners, throw to first base). At other times, they may have to decide whether to attempt a difficult throw to get the lead runner out (and prevent a run being scored) or make an easier throw to a different base to help ensure an out.
- On balls hit deep into the outfield, fielders must try to support each other by either backing up a teammate when they are attempting to field a ball or by providing a "cut-off point."



From little league to major league, baseball's popularity is undisputed.

TARGET ACTIVITIES



Archery

Bocce

Bowling

Curling

Darts

Golf

Horseshoes

Shuffleboard

Target Activities

Target activities—for example, bowling and golf—are among the most well-known sporting activities. Other well-known target games include archery, billiards, bocce, croquet, curling, darts, horseshoe pitching, lawn bowling, and shuffleboard.

In all target games, players score points by projecting an object with accuracy toward a target (for example, rolling a bowling ball toward bowling pins). Out of the various activity categories, target games have the least simultaneously occurring action. Players can often focus on making their shots without having to worry about interference by opponents (as in territory activities) or having to collect or return a moving object (as in net/wall and striking/fielding games).

This is not to say that target activities are easy to play. Anyone who has played or watched golf knows that it is not easy to hit a golf ball so that it avoids obstacles (trees, water, and sand traps) and eventually ends up in a hole that measures just under 11 cm.

Not only do target activities require a high degree of skill, but they also challenge players to make good decisions when planning their shots. Many skills learned by playing target activities can also be useful in other sports and activities.

Basic strategies and tactics

Target activities require players to send an object away with a high degree of accuracy. Players can do so with their hand (e.g., deliver a curling rock, roll a bocce ball) or with an implement (e.g., hit the cue ball with a pool cue, strike a ball with a croquet mallet).

- Sometimes this involves a clear shot at the target, such as in five-pin bowling or darts.
- At other times it might mean having to take an *indirect pathway* so that the object either bounces off another object (hitting the cue ball off the side rail in billiards) or making the object curl around an obstacle by putting some spin on it (an in- or out-turn in curling).
- In target activities, the athletic focus is on players *mastering the best stance* to send the object away effectively. Target games can still work well as team sports where players must combine their efforts to achieve success.
- In some target games, such as golf, bowling, and archery, players do not attempt to prevent their opponents from scoring. In others, such as curling, lawn bowling, and shuffleboard, *strategic play is important*. Players can prevent the other team from scoring either by setting up guards that protect previous shots that are in scoring positions or by knocking away their opponent's objects that are close to the target.



Archery is an age-old target activity that has a strong following today.

INDIVIDUAL ACTIVITIES



Aquatics
Athletics
Dance
Gymnastics
Judo
Karate
Taekwondo
Yoga

Individual Activities

Individual activities include physical and recreational activities that develop body rhythm, creativity, sequencing, and stability. Examples of individual activities include track and field, wrestling/combatative sports, gymnastics, aquatics, aerobics, yoga, Pilates, and dance.

Most people engage in individual activities to have fun and experience improvement in their health and fitness. Some turn to them for spiritual growth, while others get involved for the sheer sake of competing with themselves to see what their bodies can accomplish.

Many professional and recreational athletes use individual activities to develop various elements of fitness that are dominant in their sport. For example, to increase the strength of their abdominal and deep back muscles, they incorporate Pilates or yoga into their training regimens. Those looking to develop balance and coordination enroll in dance or gymnastics. In fact, some professional athletes take ballet to increase muscular endurance, strength, balance, flexibility, and coordination.

Basic strategies and tactics

Individual activities each involve a unique skill set. Most are not team sports and do not require much specialized equipment. However, because many different activities fall into this category, it is difficult to generalize.

- The skills involved in *track and field* include running, sprinting, and hurdling. The field skills include throwing weighted objects of varying sizes and shapes as far as you can. The long, high, and triple jumps, along with pole vaulting, are other field skills.
- *Wrestling/combatative sports* and *gymnastics* require good tumbling and landing skills. Wrestlers grab and throw their opponents to the mat, while gymnasts perform complicated tumbling feats in combination. Wrestlers receive points for throwing or pinning their opponent to the ground. In gymnastics, scoring is determined by a panel of judges who look for mandatory skill elements that are put together in sequence.
- *Aquatics* is more than just swimming. Synchronized swimming, backstroke, the butterfly, and diving all require completely different skills. At national and international competitions, swimmers rely on technology to give them a tactical advantage. The invention of full body swimsuits keeps swimmers more buoyant and reduces drag, which in turn increases speed.
- The activities most difficult to categorize are *aerobics*, *yoga*, *Pilates*, and *dance*. Although dance and aerobics competitions exist, all of these activities remain, for the most part, non-competitive. While these activities are accessible to beginners, they offer rewards for participants who take the time to gain skill and develop their strength, flexibility, and body awareness.



Dance is a remarkably expressive way to improve stability and control.

OUTDOOR ACTIVITIES



BMX biking

Camping

Orienteering

Skateboarding

Skiing

Snowshoeing

Outdoor Activities

Outdoor activities can be closely associated with life in Canada. Whether it is the thrill of skiing down a hill or blazing through trails in provincial parks, being outdoors affords us the opportunity to be “at one” with nature while being active.

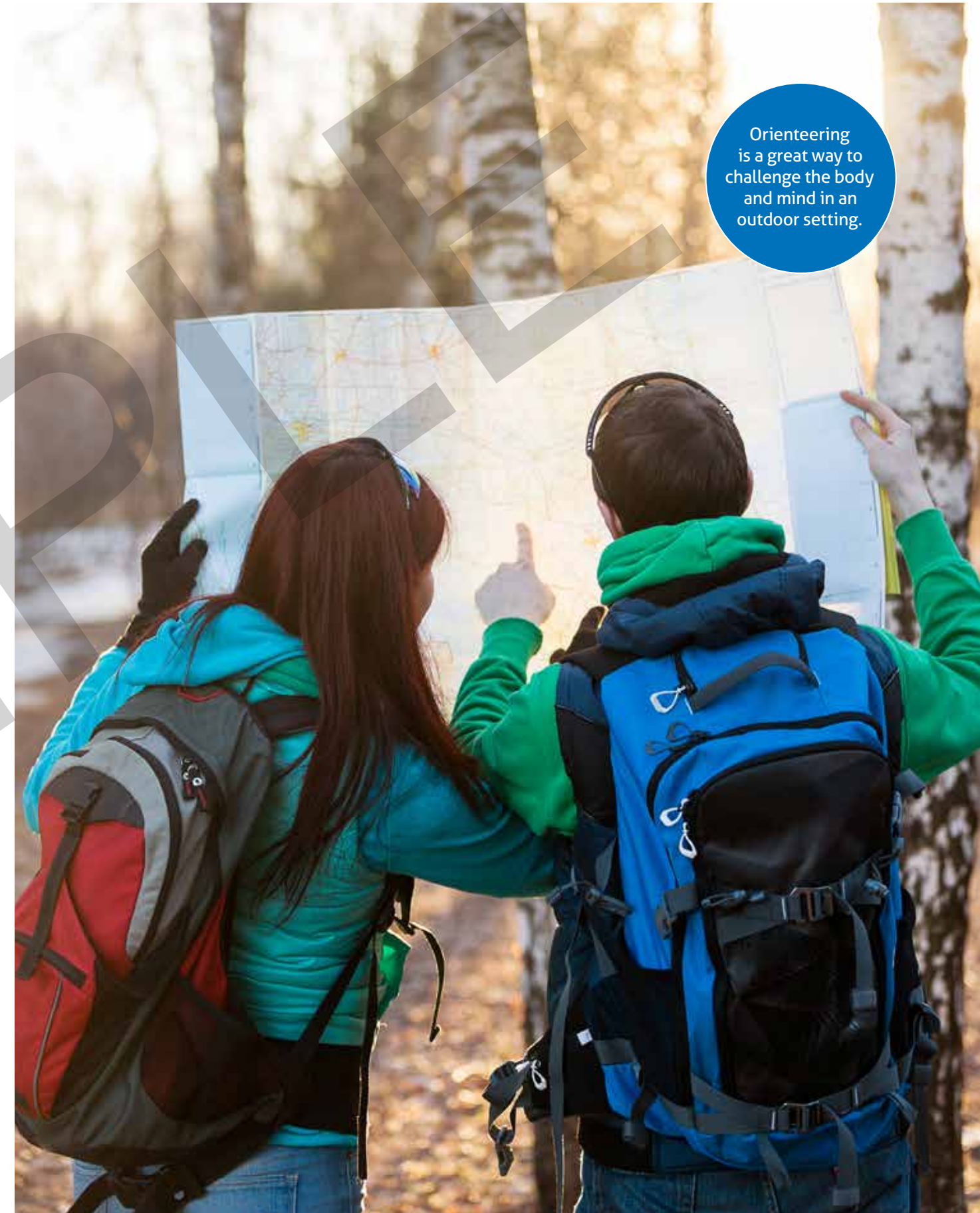
Many physical education programs offer outdoor education, yet not every student takes advantage of them. Activities such as camping, canoeing, hiking, orienteering, or downhill or cross-country skiing are fun and are also a great way to get active.

The next time your school offers a ski or camping trip, be encouraged to sign up, especially if you have never done it before. You might discover a part of yourself you never knew existed!

Basic strategies and tactics

The greatest thing about outdoor activities is that you can go at your own pace. If you are looking for competition, both orienteering and skiing (downhill and cross-country) offer it at various levels.

- **Orienteering.** The basic skills involved in orienteering are map and compass reading. Learning how to interpret what is on a map and visually land-marking those spots on the course are skills an orienteer must acquire. Movement skills depend on the type of orienteering that is being done. The most common types are walking or running.
- **Skiing.** The key skills in cross-country skiing are “the classic technique” (striding and gliding) and “skating” (similar to ice or in-line skating). Cross-country skiing, according to many experts, is the best all-around cardiorespiratory exercise. All beginner downhill skiers must learn the skill of “snowplowing.” It teaches how to control your speed and how to stop. Once you master the snowplow, you can try more difficult maneuvers.
- **Camping.** Many basic survival skills are practised when camping: building a campfire, pitching a tent, cooking your own food, and sometimes even purifying water to drink. Often you must work as a team to get the campsite set up before nightfall or a rainstorm. “No trace camping,” which basically means leaving no garbage behind, is enforced in most areas so that others can enjoy the outdoors long after you are gone.



Orienteering is a great way to challenge the body and mind in an outdoor setting.

Modifying Your Games and Activities

When we are learning how to play a new activity, game, or sport, or when we are acquiring a new skill, there is nothing more frustrating than not being able to succeed at it. Similarly, if you already have a strong skill set or playing ability, frustration can set in when you are waiting for others to catch up. You may have experienced these scenarios in your Physical Education classes at some point. After all, not everyone is at the same skill level. Therefore, the challenge is to find a middle path that meets everyone's needs and abilities so that we can all feel challenged while learning new activities and skills with our classmates and friends. This is where modifying our games or activities can really make a difference.

Practising one skill component at a time

Accommodating all students can be accomplished by modifying or breaking down the activity, game, sport, or skill we are trying to learn into bite-sized pieces, practising one component at a time, and then building on our increasing competence. Any modifications that are introduced need to be challenging for all students. Here is where you can play a vital role in your own learning. You can make recommendations to your teacher about modifications to various games and activities in order to maximize the level of challenge and fun for yourself and others.

Let's look at some suggested modifications that can be used to learn sending and receiving skills for net/wall games.

Suggested modifications related to sending and receiving skills

- Start by hitting a large soft sponge ball with just your hand to keep it up in the air. Try to beat your personal best each time. If the sponge ball is too hard to keep up in the air, use a beach ball or balloon.
- Hit the large soft sponge ball off a wall using only your hand. You are allowed one bounce off the ground before you hit it off the wall again. Try to beat your personal best each time.
- With a partner and using just your open hand and the same (or a smaller) ball, try hitting the ball back and forth to each other, allowing only one bounce before the other hits it back. See how many successful rallies (back and forth) you can have. Try to break your record each time you start a new rally.
- Now try using an oversized racquet, repeating the progressions above, or add new challenges that you and your partner devise.

These recommendations are suggestions only, and they are by no means the only possible modifications to aid progression in refining your sending and receiving skills. Your teacher (and you) will have many more ideas; the key is to communicate with your teacher and participate actively in the learning process. Doing so will ensure that everyone will experience greater enjoyment, engagement, and fun, regardless of ability.

Section 2.5 Review

- 1 Why is it useful to learn basic strategies and tactics related to the various game categories?
- 2 Which game category or categories appeal to you most, and why?
- 3 List three possible modifications to assist the acquisition of throwing skills in target games.



Mike's Story



"Understanding how the body moves makes my job as a firefighter much easier and safer. I know how to get maximal force with minimal effort in tough situations, such as breaking down walls with an axe or rescuing someone using the Jaws of Life."
— Mike Doherty

Chapter 2 Review

Knowledge and Understanding

- 1 Give three examples of movement competence (a) in everyday life; and (b) in physical activities or sports. For each example, list the benefits of moving competently.
- 2 In your own words, define the term *skill transferability*, giving one or two examples.
- 3 Distinguish between key movement features and fundamental movement patterns, using examples.

Thinking

- 4 What is the value of learning about basic strategies and tactics in the various categories of games and activities?
- 5 If a friend were having difficulty learning a new skill related to dance or some other physical activity, what recommendations could you make to help your friend feel successful?
- 6 Give an example of how you could apply movement principles related to stability or maximum effort to improve your performance of a specific movement skill.

Communication

- 7 Write a brief summary detailing how you might improve your movement competence each day.
- 8 Make a three-panelled drawing or film a brief video to show the three stages of learning a new movement skill of your choice.
- 9 Draw a simple, labelled diagram with a caption stating what a skateboarder can do to maintain stability. Use a stick figure if you wish.

Application

- 10 Describe and, if possible, demonstrate the four phases of a movement skill that you perform as part of a favourite physical activity, sport, or recreational pursuit.
- 11 Research and outline three basic strategies and tactics related to a game, sport, or activity other than the ones described in this chapter.
- 12 With a partner or in a small group, brainstorm and record some suggestions for modifying a basketball game, a game of bowling, or another activity of your choice to suit the abilities of a class of Grade 3 students.