A great deal has been written on basketball skills and how to teach these skills to athletes. Such is not the case in wheelchair basketball. Though wheelchair basketball has been played since shortly after World War II, very little has been presented in the literature specifically for the sport. As a result, most coaches and players of wheelchair basketball have taken what they learned from the running game of basketball and tried to adapt it to wheelchair basketball with varying degrees of success. Some of what is taught in the running game of basketball can be transferred to wheelchair basketball; however, the different levels of muscle function present in wheelchair basketball and the different movements resulting from using a wheelchair present some unique skills. This chapter will focus on some of those differences and emphasize the individual and team skills used in wheelchair basketball.

# Wheelchair Propulsion

The first and most important aspect of wheelchair basketball is the player’s ability to move the wheelchair. Very simply, if you cannot move your wheelchair to where it needs to be, it does not matter how well you can perform the other skills of the game. However, players spend little time learning how to maximize their wheelchair mobility. There is a significant difference between the propulsion used in wheelchair basketball and the skills learned in a rehabilitative setting.

Wheelchair movement skills can be broken down into several areas: forward pushing, backward pushing, turning, pivoting, stopping, tilting, and hopping.

- **Forward pushing.** In order to push forward, the athlete begins with his hands at approximately 12 o’clock on the wheels. This is the position at the top of the wheel. The hand grips the whole wheel, with the thumb on top of the tyre pointing forward and the other fingers gripping the push rim. This position maximizes contact with the wheel and reduces the strain on the wrist when following through in the push. As force is applied forward on the wheel in its arc, the trunk leans forward with the chin over the knees. The stroke finishes with the hands coming off the wheels at approximately 3 o’clock on the wheel. The hands are recovered with the trunk raising back up only slightly as the next push begins.

  The push will vary depending on the player’s level of muscle function. For most players with full muscle function from the waist up, including some leg function and hip function, the push just described would be accurate. As the muscle function decreases and the athlete has less trunk function, the amount she will be able to lean forward will be reduced. In most instances, the reduced trunk angle results in less force and therefore less speed, but that is not always the case. Athletes can adjust their sitting position in order to provide more stability for pushing by raising their knees above their hips and using a variety of straps to secure their trunk while in propulsion.

- **Backward pushing.** Similarly, for pushing backwards (i.e., pulling), the player will grip the wheel in a similar way, with the hand position beginning at 3 o’clock, and then lean backwards with the trunk finishing against the backrest of the wheelchair, shoulders slightly past the back posts, and hands coming off the wheels at just past 12 o’clock.

- **Turning and pivoting.** Turning and pivoting are slightly different movements and are often confused. A turn describes the movement of a wheelchair
around a point. In order to turn, the same mechanics for a forward or backward push are applied with one difference—the wheel on the side of the wheelchair in the direction to which the athlete wants to move is kept stationary while the outside wheel is pushed. Conversely, a pivot describes a movement on a point that does not cause a change in location on the court but simply a change in point of view. The athlete still pushes forward on the outside wheel, but while doing so, he pulls back with the opposite wheel.

- **Stopping.** Stopping the wheelchair is accomplished by locking the arms at the elbows and grabbing the wheels while leaning against the backrest.

- **Tilting.** Tilting and hopping (discussed a bit later) are relatively new to the sport. In the early 1990s, players began to experiment using straps to keep themselves seated in the wheelchair and, in so doing, prevent physical advantage fouls. An additional benefit is the wheelchair reacting more accurately to the player’s body movement. By tilting, players can increase their height and create space or close space on another player. The result is the tilt and hop. Very simply, a quick movement of the player’s body while strapped into the wheelchair results in the wheelchair tipping over sideways on two wheels or lifting all four wheels off the ground if the movement is vertical.

The principles of tilting are the same as those used to do a wheelie. The only difference is instead of leaning backwards and finding their balance point, players lean sideways and find their balance point. In order to tilt, players should lean sideways, quickly throwing their weight over the axle on the side to which they intend to tilt. Usually, a player will first lean over the opposite axle and then
quickly lean to the other side. To make the move easier, the player may grab on
to the wheel opposite the direction of the tilt and pull up as momentum is trans-
ferred from one direction to another.

The keys to tilting and holding the tilt lie in several areas. First, athletes should
keep their shoulders aligned with the backrest of the wheelchair. If one shoulder
is more forward than another, the athlete will fall out of the tilt. The shoulder on
the tilting side should describe a line directly down through the axle and the point
of contact on the floor. Athletes should not lean back after getting their weight
over the axle; they will lose the tilt and come down. When learning how to tilt,
they should keep their hands on the wheels between the backrest and thigh. If
the hands slide behind the backrest, the athlete could tip backwards. If the hands
slide forward on the wheels, the athlete will carve out and come down forward.
As athletes improve their balance, they will remove their hands from the wheels.

An offensive tilt is used to create space and height from the defence. This tilt
is done when players tilt away from a defender and lean on the hand on the side
to which they are tilting. This is done with the ball in the hand that is free and
the player shooting from this position. A defensive tilt pulls up on a wheel and
keeps ahold of that wheel as the defensive player leans closer to the offensive
player and contests the shot with the free hand.

- **Hopping.** Players use hopping to move the wheelchair from a position
where an opponent is trying to hold them. In some instances, hopping occurs
when a player is contesting a rebound. The force of the player’s movement in
one direction is such that it causes the wheelchair to go up with the rear wheels
off the ground. Note that if the player hops the wheelchair off the ground while
touching the basketball and doesn’t have any hands in contact with a wheel, it
is a technical foul.

### Wheelchair Skills

Each of the previously described skills can be practised while doing drills which
are similar to the drills that are used in other sports such as soccer, basketball, and
American football. The intent of the skills is to isolate these movements to get a
lot of repetitions of the movement at an intense level. Following are wheelchair
skills that serve as the core of most competitive wheelchair basketball teams,
beginning with skills that address the fundamental movements and finish with
more complex wheelchair drills and combinations of movements.

- **POWER START AND STOP**

  **Purpose**
  To develop the first two pushes needed for picking and defence

  **Focus Points**
  - Hand speed
  - Explosive first push
  - Complete stop
  - Speed of trunk movement
  - Speed of recovery to pushing position
Execution
Each person has a partner, and both people are in wheelchairs. One partner lines up on the baseline of the basketball court, facing the other baseline. The second partner holds on to the back of the first person’s wheelchair. The person in front begins by taking two maximal pushes and then immediately comes to a complete stop as quickly as possible. The first person repeats this until the far baseline is reached. The person behind holds on to the wheelchair the entire time. The person holding on should be careful of contact with the first person when the first person leans back to stop. The second person should also keep her arms straight to prevent contact between chairs when the first person stops. The partners switch when they reach the far baseline and then repeat the exercise coming back.

To increase the challenge, increase the size of the person being towed or the number of people being towed.

● **HALF-COURT TOW**

**Purpose**
To develop the 10-push sequence, or the number of pushes that a typical player uses when pushing between the 3-point lines during offensive or defensive transition

**Focus Points**
- Get to top speed as quickly as possible.
- Maintain high hand speed.
- Push all the way through to the end of the court.
- Stop sharply at the end of the court.

**Execution**
Each person has a partner. Both partners are in wheelchairs and lined up on the baseline, facing the opposite baseline. One partner is in front of the other, with the second person holding on to the back of the first person’s wheelchair. The first person begins pushing as quickly as possible to half-court. At half-court, the person who is holding on to the wheelchair releases while the first person continues to push as hard as possible, concentrating on maintaining hand speed and power. When both partners reach the baseline, they switch positions and come back.

To increase the challenge, increase the size of the person being towed or the number of people being towed.

● **FORWARD PARTNER PULLS**

**Purpose**
To develop pushing ability

**Focus Point**
To maintain speed at a high rate

**Execution**
Each person has a partner. Both partners are in wheelchairs, lined up on the baseline and facing the same direction. One partner is in front while the other person is behind, holding on to the first person’s wheelchair. The first person begins to push around the court as quickly as possible while towing the second person. Once a lap is completed, the partners switch positions.

To increase the challenge, increase the weight being towed or the number of people being towed.
● BACKWARD PARTNER Pulls

Purpose
To develop pushing ability and maintain muscular training balance

Focus Point
To maintain speed at a high rate

Execution
This drill is executed in the same manner as forward partner pulls, but the partner who is towing the other pushes himself backwards, with the second person holding on to the front of the wheelchair while being pulled by the first. The partners switch positions once a lap is complete.

To increase the challenge, increase the weight being towed or the number of people being towed.

● CLOVERS

Purpose
To develop motor learning patterns and the power in the movement needed in picking and jump-and-recover defence. Jump and recover is the defensive movement that allows a player on defence to move into proper guarding position (often referred to as wheel position) when a player receives the ball. The recover portion of this movement is the action a defensive player does when she collapses off an offensive player when the offensive player passes the ball. The distance a defensive player collapses is determined by a number of factors, including picking angles, offensive threats to score, and the defensive player’s need to help other teammates.

Focus Points
- Explode into the turn with either a push or a pull.
- Stop sharply and go right into the next turn.
- Turns should be one push in length.

Execution
This drill is done individually. Mark four spots on the floor in the shape of a square. The square should be approximately 2 metres by 2 metres. Mark the centre of the square with a spot. Beginning at one corner, the athlete pushes to the corner immediately to the right in such a way that the outside rear wheel of the wheelchair rolls over the centre mark of the square (see figure 8.1). This is a simple right turn. Once the opposite corner is reached, the athlete pulls backwards to the corner immediately to the left. In doing this, the player will continue around the square in a counterclockwise fashion, making sure that the outside wheel passes through the centre point of the square. The player will be changing from forward to backwards in order to go around the square. The player continues this manoeuvre until the halfway point of the station time. At the halfway point, change directions.

To increase the challenge, make the clover smaller or change directions during the station.

Figure 8.1 Clovers movement pattern.
● **U-TURNS**

**Purpose**
To develop wheelchair control and the spatial awareness needed in picking and jump-and-recover defence

**Focus Points**
- Focus on the rear-wheel position and not hitting rear wheels.
- Pivot quickly.
- Explode out of the pivot and into the stop.
- Maintain speed.

**Execution**
This drill is done individually. Place an empty chair or wheelchair on the baseline of the court. The athlete begins with his wheelchair on the left side of the chair, facing in the same direction as the chair. The two wheelchairs will be side by side (see figure 8.2). The athlete pulls back, clearing the chair with the wheel, turns his chair to the right 360 degrees, pivoting the wheelchair in one spot, and pushes forward so that his wheelchair is on the left side of the empty chair. Repeat this for the left side, beginning by pulling back and clearing the wheel and turning 360 degrees to the left. The athlete should end up where he originally started. Repeat this exercise as quickly as possible for the entire time of the station.

To increase the challenge, add time for any contact with the stationary wheelchair, or move the wheelchair during the drill.

● **HOPS**

**Purpose**
To teach transfer of momentum and lateral movement skills

**Focus Point**
Quick weight transfer

**Execution**
This drill is done individually. While strapped in the wheelchair, the athlete quickly hops both rear wheels or preferably all four wheels off the ground at the same time. The emphasis should be placed on height and distance moved laterally. The athlete should perform this manoeuvre at a developmentally appropriate level, progressing from using two hands on both rear wheels to hopping without any hands on the wheels.

To increase the challenge, do the following:
- Use a line to measure the distance hopped laterally.
- Move from having two hands on the wheels to no hands.
- Have the athlete hold on to a basketball while hopping.
- Jump over objects.