

APPENDIX B

MOBILITY IN WHEELCHAIR TENNIS

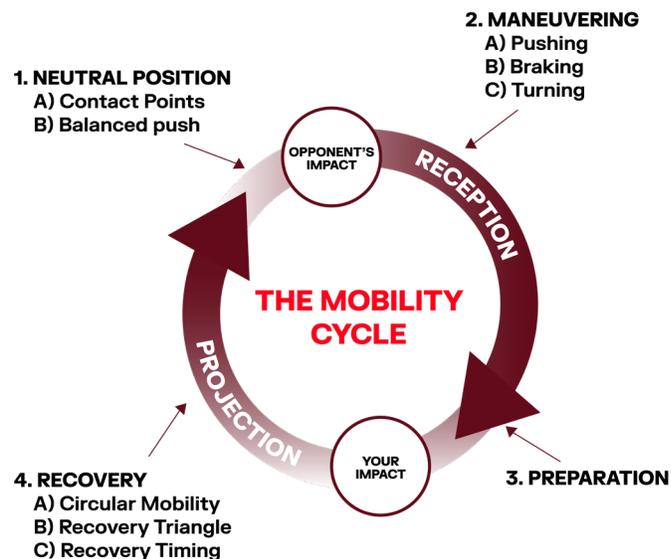
Wheelchair tennis is largely identical to (able-bodied) tennis. The game is played on the same size tennis courts and follows the same rules, barring some minor differences. Players use the same grips, hit the same strokes, and apply similar tactics and corrective techniques when they play. Coaches can apply the same teaching methodology and progressions they use for their able-bodied players.

Besides the two-bounce rule, the main differentiating factor is how a player moves on the court. Getting from A to B on the tennis court requires pushing the tennis chair versus running or using side or shuffle steps.

Coaches need to know the framework and components of wheelchair tennis movement to develop players.

To maximize positioning for any shot, a wheelchair player goes through a four-step “Mobility Cycle”. The Cycle includes:

1. The ‘Neutral Position’ prior to the opponent’s impact
2. Maneuvering (the movement of the chair to position for the shot)
3. Preparation (setting up for the stroke and the stroke itself)
4. Recovery (the chair movement to prepare for the next shot).



COACHING NOTE: During the Mobility Cycle, it is important for the player to keep moving continuously. In this way, the laws of inertia and momentum can work for the player. A point may consist of many cycles linked together with the players’ movement flowing from one cycle to the next. This is preferred over repeated stops and starts.

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Let's take a closer look at the four stages of the cycle:

1. The 'Neutral Position' prior to the opponent's impact

From the return of serve, or just after the serve, the cycle starts with the player in a neutral position with the body in balance to allow for a quick start in any direction. The position requires both hands on the wheels for quick movement. During play, the neutral position is dynamic with the player simply regaining balance and establishing good contact points after a stroke.

a) Contact Points: These are areas of the hand or racquet grip that connect with some part of the wheel (tire or hand rim). Players commonly use either the pad of the palm against the tire or the forearm. Some use a larger hand rim and others remove the hand rim completely. Whatever the technique, the main goal is to develop solid contact points.

b) Ready Position/Balanced Push: It is often an advantage to "overturn" (be angled slightly to the left for a right-hander) when in a Neutral Position. This compensates for the stronger push available from the non-racquet hand.

From a Neutral Position, a player is better able to 'read' the opponent's shot and react with a strong first push.

KEY MOMENT 1: OPPONENT STRIKES THE BALL

2. MANEUVERING

After a player has either anticipated or identified where to go based on the assessment of the opponent's shot, they must line up the movement of the chair to set up for the best impact point possible.

a) Pushing: To propel the chair, the player can thrust with one or both hands. The degree to which each hand is used provides directional control of the chair. Learning to maneuver the chair with a racquet in hand is not easy; it takes time and practice. Any way to push the chair that works is correct. However, in general, short quick thrusts are used to start and make fast adjustments. Long thrusts are used once the chair is going and keep the chair accelerating.



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b) Braking: This move is done by leaning back in the chair and grabbing both wheels firmly. Once this 'stutter' is performed, the player can change direction quickly. Just before the opponent's impact, it may be necessary to quickly slow the recovery movement to react more effectively. Braking can also be used when a player feels they are moving to the ball and will get too close (jammed impact).

c) Turning: There are three ways a player can change direction:

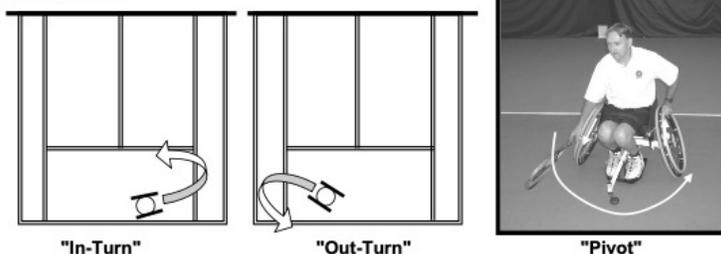
1. In-Turn: Turning in, towards the net or the centre of the court
2. Out-Turn: Turning out, away from the net or towards the sidelines
3. Pivot: Pulling one wheel and pushing the other to produce an, 'on the spot' turn. This move is often used when a ball is coming right at the player.

Turns can be executed in two ways:

1. Pull Turn: Using the movement of the chair to produce a turn by slowing one wheel. This can be done by using the hand on the same side (e.g. left hand on the left wheel) or with a "Cross-hand turn" which is done by grasping the wheel with the opposite hand (see photo).
2. Push Turn: Pushing more on one wheel to speed it up can also turn the chair.



FIGURE 17: Turns



COACHING NOTE: during a rally, players should try not to lay the racquet on their lap to try and free their dominant hand for the pushing motion. While it may feel like a more efficient way to move, it will make it more difficult to prepare for the next shot.

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COACHING NOTE: Beginners sometimes push backwards to recover. This type of manoeuvre is counterproductive as it creates inertia when the player moves back and forth in a straight line as opposed to applying circular mobility.

3. PREPARATION

Once the player is in position (either moving or not) the racquet can then be set for the stroke. In wheelchair tennis, the dominant hand must make the transition from pushing to stroking very quickly.

Able-bodied players are allowed the luxury of quick leans or back-steps for last-minute adjustments in positioning and spacing, while not affecting racquet preparation. Wheelchair players, however, must use both hands to maneuver the chair for last-second adjustments, making racquet preparation difficult. Since the racquet hand is involved in both the mobility and racquet work, the timing of the racquet hand making the transition from pushing to hitting is crucial. Too early and no positioning adjustments can be made, too late and the stroke becomes a quick uncontrolled 'slap'. As a general guideline, the player should transition their hand from pushing to stroking about the same time as the ball bounces.

KEY MOMENT 2: IMPACT POINT - PLAYER HITS THE BALL

4. RECOVERY

After hitting the ball, the player needs to recover in preparation to intercept the next shot. Recovery for a wheelchair player includes many distinct features to maximize positioning.

a) Circular Mobility: As mentioned previously, it's important for players to maintain momentum rather than stopping and starting. To achieve this, they must make constant circles. This is called 'circular mobility' and is critical in the recovery process to get to the best position to return the next shot on time.

After the player has struck the ball, it is vital they get themselves to the best recovery position (often referred to as the "hub") as quickly as possible in anticipation of the opponent's next shot.

COACHING NOTE: "Don't admire your shot for too long!" Beginners have the tendency to remain in a position to observe the outcome of their shot. Priority must be given to getting back to the recovery position as quickly as possible. They should either be watching where the ball lands while they are pushing or they may take their eyes off the ball and re-locate it at the moment the opponent strikes the ball.

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Whether the player makes an in or out turn will largely depend on the quality of the shot they hit and the anticipated next shot by their opponent:

- An “in turn” on the forehand (also called a “natural turn” because it follows the natural momentum of the swing and chair rotation) will allow the player to move into the court towards the net in anticipation of a shorter ball. It also gives them the option to follow the swing/chair momentum further and recover towards the back if they want to establish a more neutral/defensive recovery position.
- An “out” turn on the forehand (also called “counter turn”) will force the player to turn against the natural swing/chair momentum. The player will opt to do this to be able to reverse back behind the baseline quickly to set up a defensive position and buy time and space in anticipation of the opponent’s next shot.
- An “out” turn on the backhand (the “natural turn” for the backhand) will allow the player to recover towards the back of the court to establish a neutral or defensive hub behind the baseline.
- An “in” turn on the backhand (“counter turn”) will force the player to turn against the natural swing/chair momentum. The player will opt to turn into the court when they feel their shot can take time away from the opponent. This may lead to receiving a shorter ball, so they can take advantage of either off the first bounce or as a volley.

COACHING NOTE: As a ‘rule of thumb’, a player should attempt to perform a “natural turn”, which is the turn that is most in harmony with the player’s chair and swing momentum. As laid out above, the exception to the rule is when a player can gain an advantage or minimize an opponent’s advantage. In this case, a player may choose a “counter turn” which is one that ignores the momentum rule. A counter-turn is harder to perform but may be worth the effort tactically.

- The ideal recovery position will depend on the type of shot the player has hit:
- Attacking shot: recovery position closer or inside the baseline to take advantage of the next ball
- Defensive shot: after sending a weak shot, the player may recover more defensively behind the baseline to allow for more time and space to intercept the next shot
- Angled shot: recovery towards one side of the court (recovery triangle, view below)

COACHING NOTE: One common mistake beginners make is to recover too close to the baseline on a neutral or defensive shot. This may not allow for enough time to set up to intercept the next shot.

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c) Reverse mobility: In neutral and defensive situations, a player's best recovery position is performed while wheeling towards the back fence well behind the baseline. This allows the player to establish the appropriate "hub" while moving and maintaining momentum. A recovery too close to the baseline when neutral or defensive will pose a challenge in receiving the opponent's shot.

The player pushes facing away from the court. This may cause them to lose sight of the ball. However, at the moment of the opponent's impact (at the latest), they must look over their shoulder back at their opponent to pick up the information required to "read" where the shot will land.

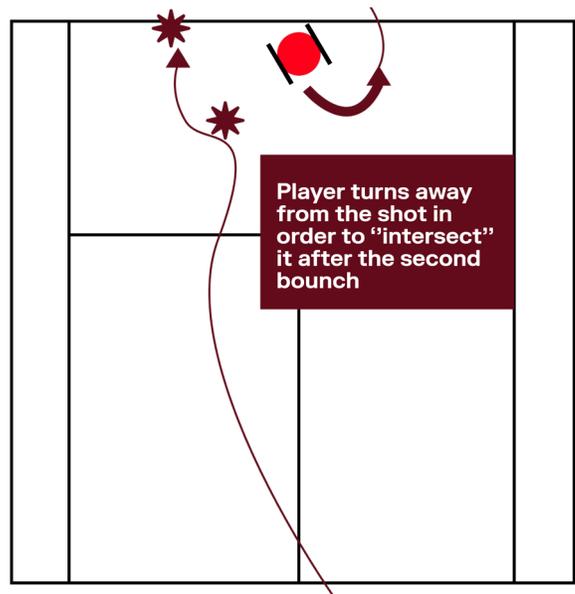
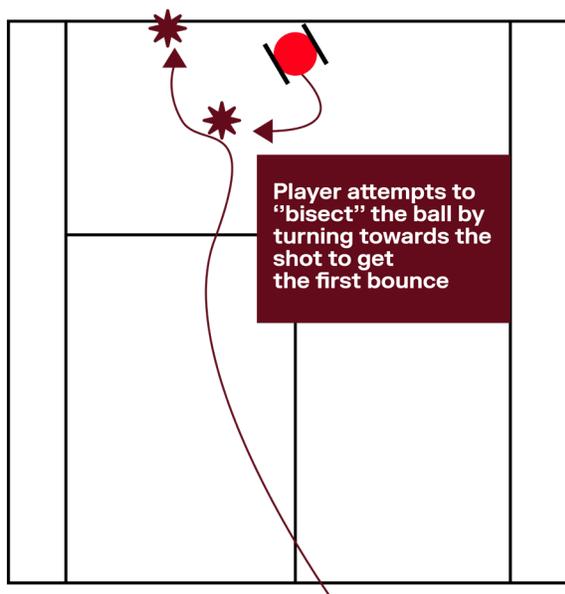
Based on the information gathered, the player now has two options:

1. Intersecting the shot: Since wheelchair players are allowed two bounces, it is often more effective to use reverse mobility, turn away from the play and 'intersect' the opponent's shot. This contrasts with a stand-up player who must 'bisect' the opponent's shot, often by going towards it. Moving away from the shot will allow more time, a better court position, and maneuvering room.

2. Bisecting the shot: Should the player assess the incoming ball as short, they may opt to turn into the court to seek to attack the shot off the first or second bounce.

COACHING NOTE: It is natural to want to always face the opponent. To "intersect" the ball, it is necessary to turn your back to the opponent. This may seem unnatural for most players, and it is a good idea to reassure them that this is a good manoeuvre. Coaches are encouraged to incorporate recovery drills into their sessions as early as the physical warm-up stage.

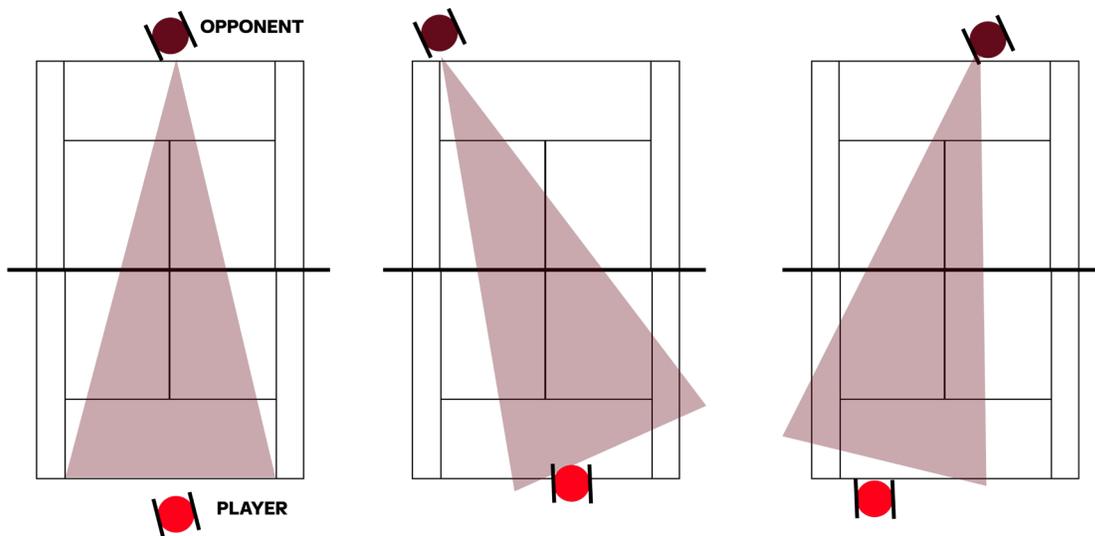
COACHING NOTE: "Wait for it!" It is important that the player does not turn back towards the court until they clearly see where the opponent's ball is going. Turning into the court prematurely (before the ball leaves the opponent's racquet) may pull the player back towards the baseline, which may undermine the ideal recovery position.



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d) Recovery Triangle: It is important for wheelchair players to adopt the best location possible after their shot, to maximize their potential of getting to the next ball.

They must get to a recovery position that is equal distance to any shot the opponent hits. This position changes depending on where they have hit the ball. If we imagine a triangle with the opponent at the peak, the player must recover in between the two ends of the base of the triangle.



The triangle also lengthens or shortens depending on the strength of the shot the player hits. Sending a strong shot will allow a recovery more inside the baseline to take advantage of the next ball. Conversely, after sending a weak shot, the player may recover more defensively further back.

For the serve, players tend to locate about a chair width behind the baseline to serve (rather than just behind the baseline as all A/B players do). This will allow them to receive a deep return an opponent may hit without turning around and using reverse mobility.

COACHING NOTE: On second serves, top players have the option to set up at the baseline, but immediately reverse recover behind the baseline after their serve to gain a defensive position to intercept the anticipated attacking return. In this scenario, the top spin kick serve is usually their serve of choice as the ball travels in the air longer and therefore gives them more time to perform the recovery motion.