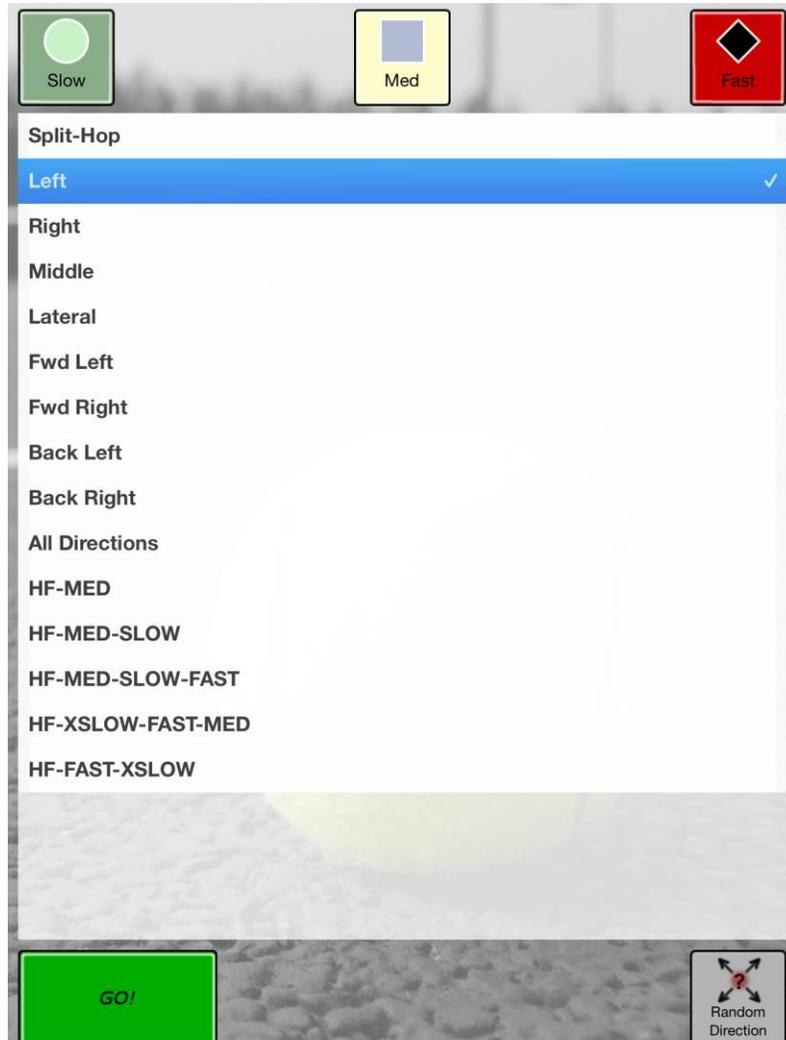


# SPORTS SPLIT STEP TENNIS

## APP & APP Plus

### USERS MANUAL



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## Introduction

What factors make some individuals superior in skills during sporting events? This question has been asked by many trainers for as long as sport has existed.

The Split Step Coach concept does not address all the factors, but it does address the issue of timed movement; timed movement has been and is a core factor that can help dedicated athletes in any sport be the best they can be.

Directing our attention to the game of tennis, one might ask, "What are the fundamental movements of professional tennis players?" SSC concepts train to maximize the starting acceleration with resulting speeds that allow quicker positioning of the individual or athlete, and thus better control of muscle groups involved in executing a simple or more complex stroke. A document on our website ([www.Sports-Split-Step.com](http://www.Sports-Split-Step.com)) called the 'Fundamental Movement' provides an in-depth look behind the concept of timed movement.

Professional tennis players will perform the same basic movements on each and every ball hit by the offensive player. The defensive player is at a disadvantage when not being in the perfect position, but their best reaction is to perform the movements described within this document.



# Fundamental Movements of Professional Players

The following chart describes in more detail the movements between consecutive hits of a tennis ball. In this tennis example, the average times were obtained from many different match videos similar to the match between [Federer and Hewitt](#). We then analyzed and correlated these movements to the 5 action pictures shown in the section called 'Breaking Down the Movement between Hits'.

	player-1	player-2	
1	player hits ball	top of the hop	instant in time
2	time to recover	time to land	average 1.38 sec
3	time to center prepare & Start hop	time to ball	
4		time to swing	
5	top of the hop	player hits ball	
6	time to land	time to recover	average 1.38 sec
7	time to ball	time to center prepare & Start hop	
8	time to swing		
9	player hits ball	top of the hop	Instant in time

1. The Split Step Concept is built around the movements indicated in the above chart. With IOS or ANDROID mobile devices there is a vertical column of 5 RED Lights that will begin to sequence in a downward direction as the defensive player recovers & centers (start of item 3 in the table for player-1).
2. At the end of item 4 all 5 RED LEDs turn OFF as player-1 starts to rise into the air (an audible Beep occurs). Sometime between the end of item 4 and the 'Top of the Hop' a combination of 4 Green Directional LEDs will turn ON to indicate the direction in which the player must move for an imaginary ball.
3. The Green Directional Arrows will remain ON as player-1 determines the imaginary ball's direction and lands on the ground with their Offside Foot (end of item 6).
4. The 5 RED Lights will now begin to sequence in an upward direction as the player accelerates to the hitting position. When 3 of the RED Lights have been turned ON, the player must begin to decelerate and prepare for their shot. The racket should be timed to be at the Contact point when all 5 RED Lights have sequenced ON; a 2<sup>nd</sup> audio Beep will also occur at this time.
5. Once the ball is struck, all the RED and Directional Lights (Green Arrows) will turn OFF (item 1, 9) and will momentarily remain OFF as the player recovers (item 2) and begins to center (item 3).

6. We have now arrived at the start of item 4 where-in we began preparing for the HOP, in other words as the RED Lights start their downward sequence.
7. A [special video](#) can be activated which will allow the student to learn what physical movements correspond to the RED Sequencing Lights and when to perform various movements. The user can also practice these moves in front of their home computer.

## Features & Training Advantages of the Split Step Tennis Apps

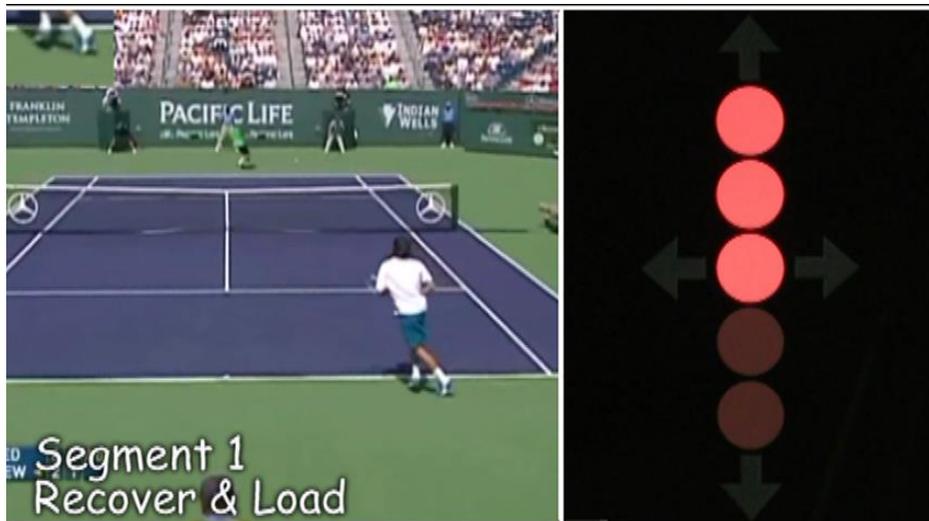
SSC products emulate the movements and timing of athletes in many of today's sports. Furthermore it provides a platform by which the player can perform what Daniel Coyle in his New York Times bestselling book, '[The Talent Code](#)', describes as 'Deep Training'. Deep Training is where an athlete executes repetitively sport specific movements at controlled speeds, so that they can be exactly what are desired. In so doing the sensory-motor pathways for remembering are greatly enhanced as one is forced to increase the speed and add more difficult movements.

### Training Advantages

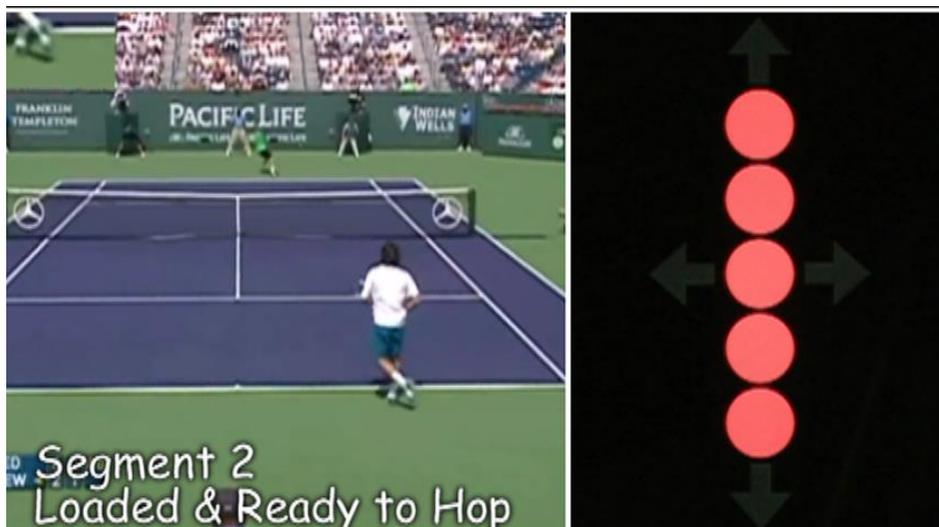
1. Accelerates the training and skill building of a player
2. Enhances the training of the Split Step, an important move in tennis
3. Promotes better court coverage
4. Develops movements timed to the opponent's shot
5. Builds aerobic capacity while executing a timed stroke
6. Can be used with athletes before, during or after the introduction of strokes
7. Stroke production and technique can also be practiced without having the skills required for hitting a real ball
8. Can be used on court, in your driveway, or any open area
9. Allows the athlete to train with the drills at various speeds (SLOW, MEDIUM, FAST) so that accuracy in execution can be assured before increasing difficulty.
10. Precise measurements can be recorded with a video camera for evaluating a player's progress within the 3 different levels of difficulty and 10 to 15 different drills.

## Breaking Down the Movement between Hits

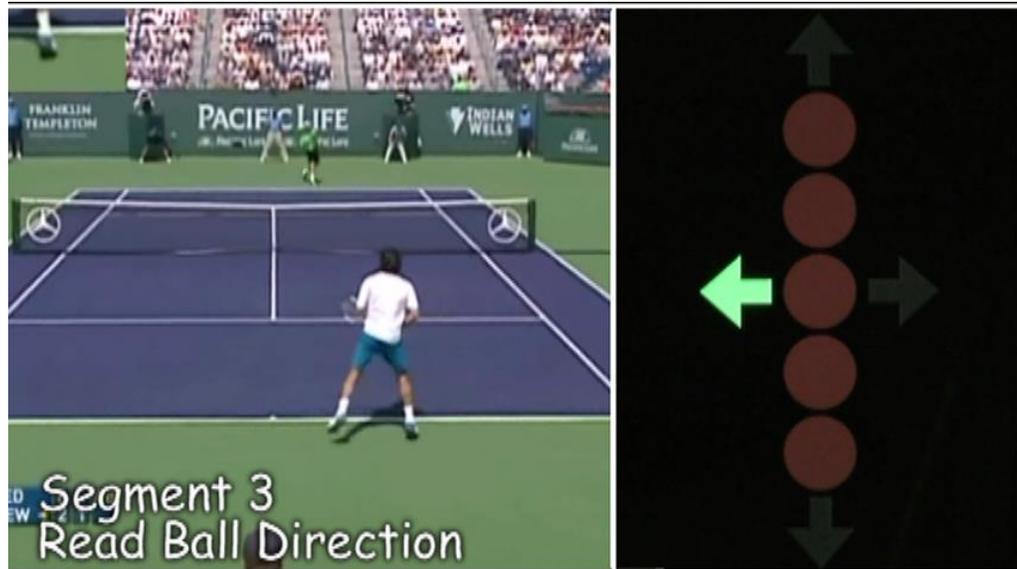
1. Before the offensive player hits the tennis ball, the defensive player will be **CENTERING** or moving to the most likely landing spot of the opponent's ball. As the offensive player begins their swing to contact the ball, the defensive player will begin to load their legs in preparing for a **HOP** into the air. The downward sequence of the 5 RED Lights prepare the defender for the proper time to initiate their vertical hop.



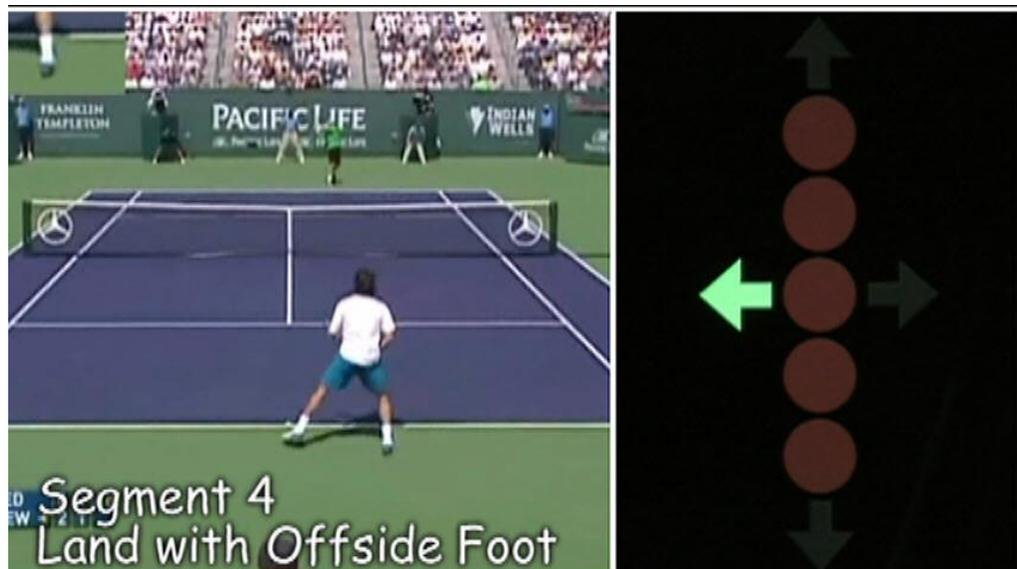
2. Ball contact is an important time and the defensive player's goal is to begin their hop before ball contact so as to be at the TOP of their HOP (TOH) when the ball is struck. As the 5 RED Lights turn OFF, an audible BEEP occurs at the same time as the HOP; shortly afterwards a GREEN Directional Arrow comes ON.



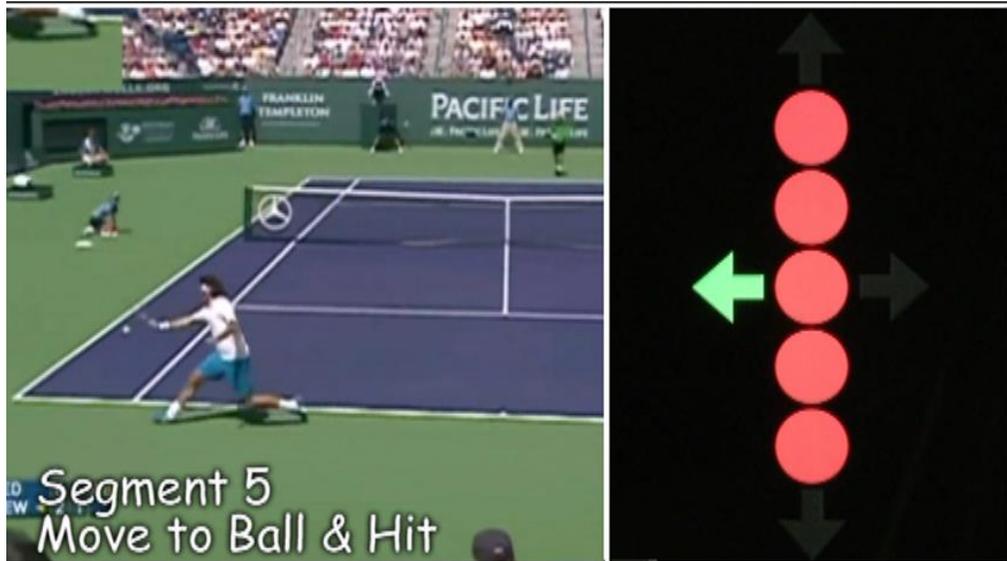
3. As the player reaches the TOH the GREEN Directional Arrow(s) comes ON and is analogous to the ball coming off the offensive player's racket. This is a most important time in which the sensory-motor pathways of the player will be trained. The defensive player's goal is to determine the direction as they begin to descend from the TOH to the tennis court.



4. The defensive player will always (with some exceptions) try to land on the foot that is away from the incoming ball so that gravity can help them accelerate as quickly as possible in the proper direction for the incoming ball.

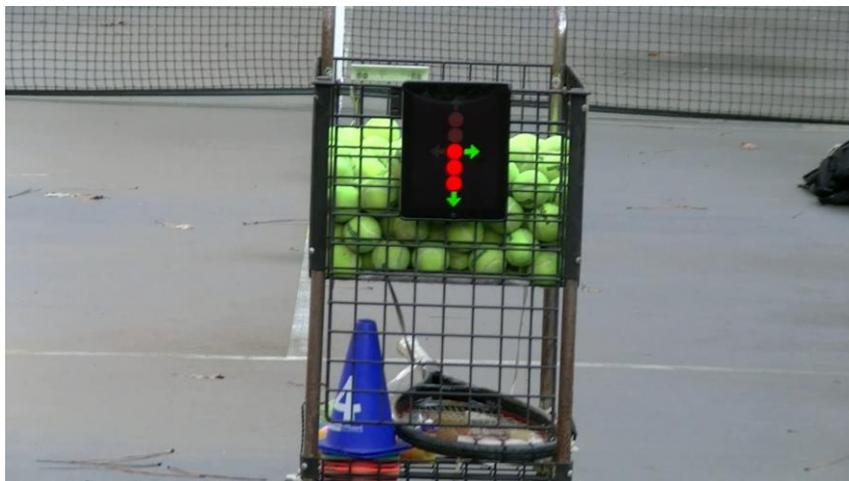


5. After the defensive player gets near the hitting position they must begin to decelerate and prepare for their shot. Once the player hits the ball they can then begin to recover from their shot and start centering for the opponent's next shot.

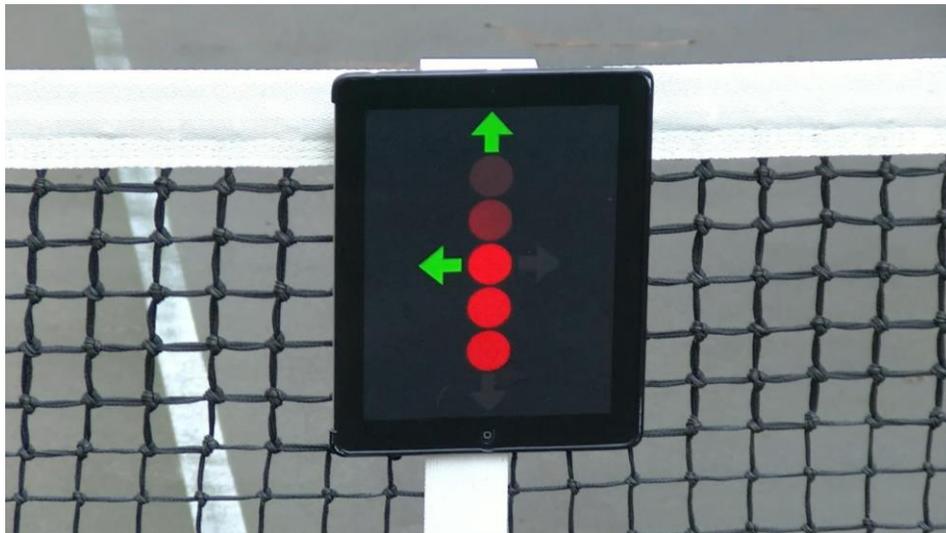


## General Operations

The versatility of the IOS and ANDROID mobile devices makes for a wide array of mounting locations that can be used with these Apps. The tablets have an industrial Velcro & aluminum bracket that allows the tablets to be safely mounted onto either ball carts or nets. All 15 of the drills available in the Sports Split Step Tennis Plus App can be used with the Tablet Devices mounted in either of these two locations. The Phone Devices can be used when a Coach wants to move around the court. Either type of Mobile Device can be used with any of the 15 drills.



i-Pad on Ball Cart Running All Direction Drill



i-Pad on Net Running All Direction Drill



i-Phone on Chest Strap Running Hand Feed Drills



close up

## Using the Apps with [IOS](#) or [Android](#) Mobile Devices

1. There are 10 BASIC drills that enable a Coach to train movement in a progressive sequence. These 10 BASIC drills are used for 'imaginary ball' drills in which the coach can start without a racket and progress to teaching with the racket.
2. There are 5 additional drills that can be used when Hand Feeding a ball to the player.
3. Any of the 15 drills can be used at any one of 3 different levels of difficulty (i.e. SLOW, MEDIUM or FAST). The Selection Buttons appear at the top of the display and can be toggled by tapping on the desired ICON.

4. Drill #5 & drill #10 can be selected for RANDOM or REPEATABLE directions of movement. The selection button is located at the lower right bottom of the screen and can be toggled by tapping on the ICON.
5. Movement Direction for the 10 BASIC drills are determined by the GREEN Arrows that come ON at the Top of the Hop:
  - a. LEFT Arrow -> move to Left
  - b. RIGHT Arrow -> move to Right
  - c. LEFT & RIGHT Arrow -> run around forehand shot (inside-out)
  - d. LEFT & TOP Arrows -> move Forward and Left
  - e. LEFT & BOT Arrows -> move Backward and Left
  - f. RIGHT & TOP Arrows -> move Forward and Right
  - g. RIGHT & BOT Arrows -> move Backward and Right
  - h. TOP Arrow -> move towards net
  - i. Bot Arrow -> move towards back fence
  - j. LEFT, RIGHT, TOP Arrows -> move to net for a drop shot
  - k. All 4 Arrows & 5 RED Lights ON -> rotate to next person in line
6. The Movement Direction for the 5 Hand Feed drills is determined by the coach, the player learns to read this direction (while at the TOH) as the ball leaves the hand.
7. As seen in this [short video](#) the coach can use this App to train the all-important timing of the split step, IF the coach uses both arms in delivering the ball; by doing so, the player can be forced to read the direction while at the TOH.
8. Note when using any of the 5 Hand Feed Drills that the coach and player will be 'syncing' themselves to the App Device in the following ways:
  - a. The Coach will positioning in front of the ball cart when using the Chest Strap; when using the i-Pad on the net or ball cart the Coach will position themselves behind the cart or net.
  - b. The Coach will face the player with 3 or 4 balls in each hand and both hands touching in front of their body.
  - c. A double Beep will occur just before the RED Lights begin to sequence down the display, the Coach will use these beeps to begin a backward motion of both hands.
  - d. The coach will continue this backward motion until a single Beep occurs indicating the start of the forward motion to the release point of the ball.
  - e. During this same time the player will be in Segment 1 Centering/Recovering so as to be loaded at the instant all 5 RED Lights come ON.
  - f. The player will be focused on the 5 RED Lights as they sequence downward, while the Coach will be focused on timing both arms with the audio Beeps.
  - g. The player will HOP at the instant all 5 RED Lights and Beep occur, which is before the ball is released by the Coach.

- h. The Coach will release the ball when they hear another single Release Beep, which occurs when the player is at the TOH; they then will prepare for the double Beep.
- i. The player will accelerate towards the ball, then decelerate and execute the stroke being learned; immediately after the hit the player will re-center using the downward sequence of the 5 RED Lights to prepare for the next split step and ball throw.

## Quick Guide for the Apps

### BASIC 10 DRILLS

(A SLOW, MEDIUM OR FAST Sequence of Movements with player returning to Starting Point)

1. **Split-Hop** -> [Vertical Timing](#) of the Hop (No Directional Lights)
2. **Left** -> [Moving Left](#) (Left Directional Light)
3. **Right** -> [Moving Right](#) (Right Directional Light)
4. **Middle** -> [Inside-Out](#) (Left & Right Directional Lights, movement can be coach defined)
5. **Lateral** -> [Moving Left, Inside-Out, Right, Inside-Out](#) (Left & Right Directional Lights with RANDOM or REPEATABLE selection)
6. **Fwd Left** -> [Moving Forward-Left](#) (Top or Forward & Left Directional Lights)
7. **Fwd Right** -> [Moving Forward-Right](#) (Top or Forward & Right Directional Lights)
8. **Back Left** -> [Moving Back-Left](#) (Bottom or Back & Left Directional Lights)
9. **Back Right** -> [Moving Back-Right](#) (Bottom or Back & Right Directional Lights)
10. **All Directions** -> [Moving in All Directions](#) (1 of 8 different directions with RANDOM or REPEATABLE selection)

### HAND FEED DRILLS

(A SLOW, MEDIUM OR FAST Sequence of Movements with player returning to Starting Point)

1. **MED** -> 6 [Medium](#) Speed Balls
2. **MED-SLOW** -> 3 Medium and 3 Slow Balls)
3. **MED-SLOW-FAST** -> 2 Medium, 2 Slow, 2 Fast Balls)
4. **XSLOW-FAST-MED** -> 2 Extra Slow, 2 Fast, 2 Medium)
5. **FAST-XSLOW** -> 1 Fast, 1 XSlow, 1 Fast, 1 XSlow, 1 Fast, 1 XSlow)