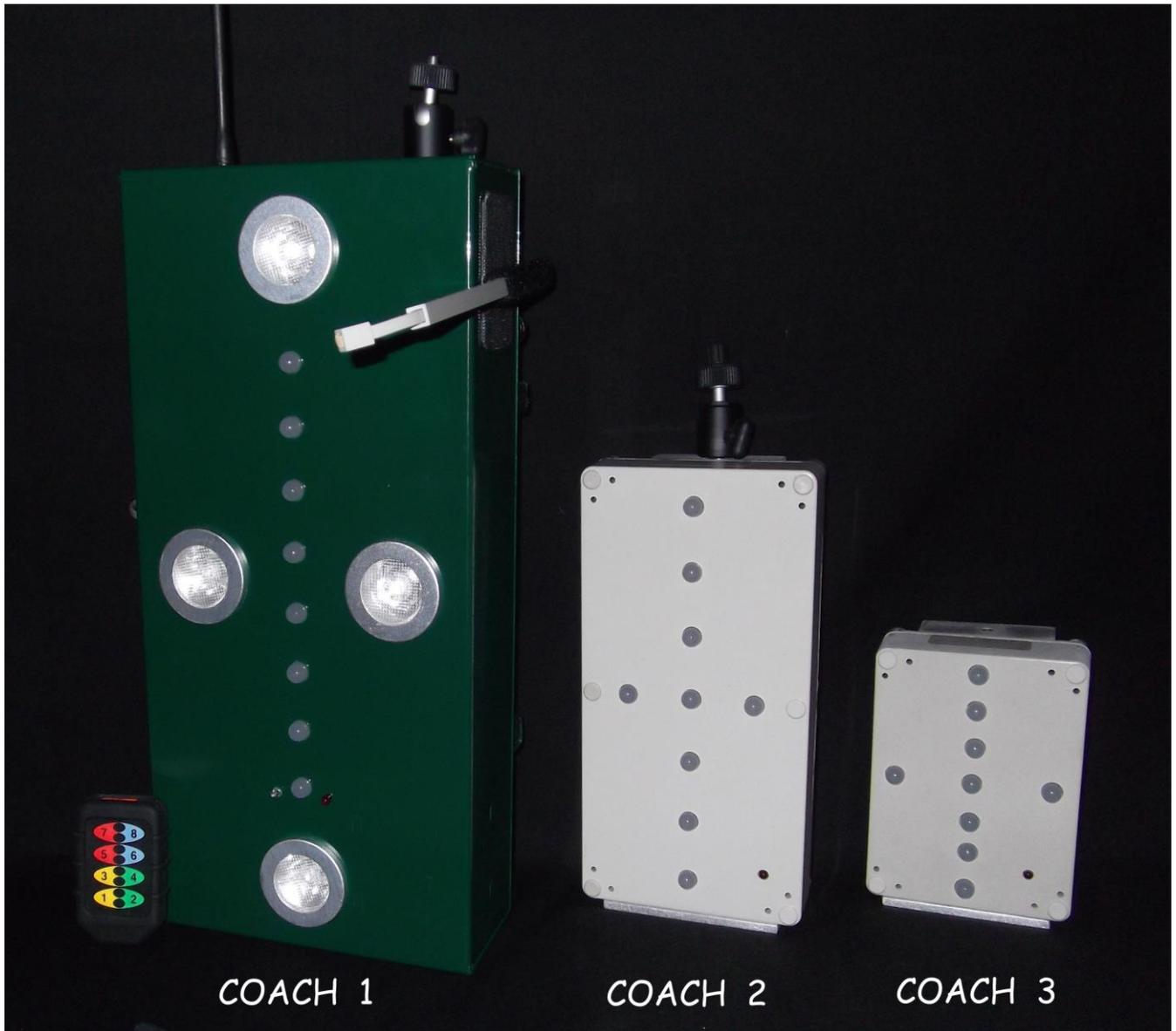


SPLIT STEP COACH 3 TENNIS USERS MANUAL



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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 civilizations have existed.

The Split Step Coach does not address all the factors, but it does address the issue of timed movement; movement has been and is a core factor that can help dedicated athletes in any sport be the best they can be. More information can be obtained in several [Newsletters](#) found under Documents at our website (www.sports-split-step.com).

SSC trains 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 stroke](#), a kick, [a catch](#), a toss or other [complex movements](#). A document on our website (www.Sports-Split-Step.com) called the '[Fundamental Movement](#)' provides an in-depth look behind the SSC line of products (COACH 1, COACH 2, COACH 3).

Directing our attention to the game of tennis, one might ask, "What are the fundamental movements of professional tennis players?"

Professional tennis players will perform the same basic movements on each and every ball hit by the offensive player (even if they cannot make it to the CENTER of possible returns) before the offensive player hits the ball. The defensive player is at a disadvantage when not being in the perfect position, but their best reaction is to execute the following moves.



1. Shortly before the offensive player hits the tennis ball, the defensive player or the player about to have the ball land in their court will have CENTERED or moved to the most likely spot where the opponent's ball will land.
2. As the offensive player's begins their swing to contact the ball, the defensive player will begin to load their legs for performing a HOP into the air.
3. Ball contact by the offensive player is an important time and the defensive player's goal is to be at the TOP of their HOP when the ball is struck.
4. Reading the direction of the ball coming off the offensive player's racket is a most important skill and the defensive player's goal is to determine the direction as they begin to descend from the TOP of the HOP to the tennis court. Timing is crucial for insuring the defensive player the best possible position for the opponent's shot.
5. The defensive player will always try (with some exceptions) and 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.
6. After the defensive player gets near the hitting position they begin taking shorter steps in preparation for their shot. Once the player hits the ball they can then recover from their shot and begin centering for the opponent's next shot.

Many sports including basketball, football, and soccer can have a slightly different aspect to consider when training *offensive* players. When a running back (offensive player) comes thru a hole and sees the line backer approaching, he will generally give some kind of fake and then rise into the air. Depending on the line backer's decision (move to left or move to

right) the running back will want to land on the offside foot and move in the opposite direction.

The offensive athlete should train using the Split Step Coach (SSC) by moving in a direction opposite to the directional LEDs. For instance, if the right directional LED comes on the offensive player will want to move LEFT. SSC provides the athlete sequences of directional LEDs in which both forward and random lateral movements will test and improve the sensory-motor pathways.

Features & Differences of the Split Step Coach Series

COACH 1

Top of the line tool for indoor and outdoor training.

Features include:

1. Large Panel Display,
2. Sixteen Progressive-skill Drills
3. Three levels of difficulty
4. Remote Control
5. Battery operation with charger
6. Advanced Color Feature
7. iPad Option
8. Video Option & Mount

COACH 2

Middle of the line tool for indoor and limited outdoor training.

Features include:

1. Ten Progressive-skill Drills
2. Three levels of difficulty
3. Remote Control
4. Battery operation with charger
5. Advanced Color Option
6. Additional Five Drill Option
7. Camera Mount Option

COACH 3

Economical tool for inside training.

Features include:

1. Ten Progressive-skill Drills
2. Three levels of difficulty
3. Manual Pushbutton Control
4. Battery operation with charger
5. Camera Mount Option

SSC emulates the movements and timing of athletes in many of the 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 an athlete
2. Enhances the training of the Split Step, an important move in most sports
3. Promotes better court or field coverage
4. Develops movements timed to the opponent's shot or other critical movements
5. Builds aerobic capacity while executing a timed stroke, kick or throw
6. Can be used with athletes before, during or after the introduction of strokes, kicks or throws
7. Stroke production and technique can also be practiced without having the skills required for hitting, catching, or kicking a real ball
8. Can be used on court, on the grid-iron, in your driveway, or any open area
9. Precise measurements can be recorded with a video camera for evaluating an athlete's progress within the 3 different levels of difficulty and some 16 drills.
10. Allows the athlete to train with the same drills at various speeds so that accuracy in execution can be assured before increasing difficulty.
11. The CUSTOM drills (with Anticipation cues) allow the athlete to anticipate the first move and then anticipate the execution of a sport specific movement (see description under the Video Option).

Fundamental movements of professional athletes

The following chart describes in more detail the possible movements between consecutive hits of a tennis ball. However, most sports can be dissected into the same or similar movements and Sport Split Step offers a service in which a coach's special sport and special drills with their special timing can be included into the SSC software.

In this tennis example, the average times were obtained from video of a match between [Nadal and Monfils at the 2009 US Open](#). We will now analyze and correlate these movements to the events that occur when working with the Split Step Coach.

	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	time to ball	
4	hop	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	
8	time to swing	hop	
9	player hits ball	top of the hop	Instant in time

1. The Split Step Coach is built around the movements indicated in the above chart. On the front surface of the SSC, there is a vertical column of 8 RED LEDs 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 8 RED LEDs turn OFF as player-1 starts to rise into the air (SSC emits an audible beep). Sometime between the end of item 4 and the 'Top of the Hop' some Directional LEDs will turn ON to indicate direction in which the player must move.
3. The Directional LEDs will remain ON as player-1 lands on the ground (end of item 6), the RED LEDs will now begin to sequence in an upward direction.
4. As the player runs to the hitting position for this shot (item 7) the RED LEDs continue to ripple upwards. When about 4 RED LEDs have turned ON the player should be starting their swing so that as the top RED LED turns ON, the player will be contacting the imaginary ball (i.e. at contact point); a 2nd audible beep will be emitted at this time.
5. Once the ball is struck all RED and Directional LEDs will turn OFF (item 1, 9) and will 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 last hop, in other words as the RED LED's start their downward sequence.
7. A [YouTube Playlist](#) allows the student to learn what the LED metaphors imply and when to perform various movements. The user can practice these moves and become familiar with the metaphors used in the SSC3 for the sport of Tennis.



SPLIT STEP COACH

Setting up the Coach 3 Hardware

1. Unpack the Coach 3 display panel and battery charger; you might want to 'top off' the battery with an overnight charge before teaching a lesson; we ship with a fully charged battery.
2. Mount the Coach 3 display panel by hanging it from your roll-around ball cart, the net cord, a stable table, or medium/large sized tripod; typically 36" to 48" above the court or field makes for the most realistic viewing.
3. Viewing will be limited in this model of the SSC product series and so using it at a closer distance will result in the best viewing.
4. Coach 3 can be elevated by extending the tripod or ladder, or hanging it from the top of the tennis fence, thus allowing easy viewing for large groups. Coach 1 or Coach 2 may be desirable for larger distances or larger groups.

5. The panel's front surface should be aligned perpendicular to the athletes so that easy viewing of the LEDs from both sides of the field (or court); position players at 15 to 30 feet from the Coach 3 for proper viewing.
6. Power up the unit by using the switch on the rear of the chassis.
7. The default conditions after powering up are
 - a. BASIC type of drills
 - b. Low LEVEL (Beginner) operation
 - c. Automatic sequencing of drills.

Back Panel Button Control Functions

1. The RED Push-Button located on the rear of the unit performs 2 functions.
 - a. Advance the Drill by pressing the RED button for 1/2 second
 - b. Change the level of difficulty: BEG, INT or ADV by pressing the for 1 second
2. The BLACK Push-Button located on the rear of the unit also performs 2 functions:
 - a. Toggles between the BASIC & CUSTOM by pressing button for $\frac{1}{2}$ second
 - b. Toggles between Fixed and Random Directions by pressing button for 2 seconds

General Operations

1. There are 10 different BASIC drills (see section on Drill Descriptions).
2. The default level of difficulty is BEG, to select the INT level press the RED Button for 1 sec; pressing a second time will sequence to the ADV difficulty.
3. The user can stop the startup automatic sequencing of drills by pressing the RED Button one time, which will select Drill #1 (TOP RED LED will flash) while keeping all other parameters the same.
4. Once the RED Push-Button is pressed, Drill #1 will run continuously, until another drill is selected by pressing the RED Button again.
5. The DRILL # selection can continue in this fashion thru DRILL #5 at which time another push would activate the automatic sequencing mode.
6. This sequence mode will automatically execute a Drill and then sequence to the next Drill (#1, #2, #3, #4, #5) and then repeat; this automatic sequencing mode is a good warm up mode for athletes arriving early for their lesson.
7. Again, to exit the automatic sequencing mode the user would press the RED Push-Button one more time and Drill #1 will begin executing while remaining at the same LEVEL of difficulty.
8. You can toggle the 2nd group of BASIC drills by pressing and releasing the BLACK Push-Button and toggle between the 1st and 2nd BASIC groups; the LEFT Directional LED will Flash momentarily when in the 2nd BASIC group of drills and will be OFF when in the 1st BASIC group of drills.
9. Random Sequence of Directions is the ultimate challenge and can be selected by pressing the BLACK Button until a double Beep occurs; pressing a second time until a double Beep occurs will toggle back to the Fixed Sequence of Directions.

The LEVELS of Drills vary in difficulty

1. BEGINNER: Lowest difficulty (slower tempo within & between shots)
 - BASIC (i.e. 2 groups of 5 drills each)
 - BASIC drills use the individual or combinations of the Directional LEDs in a predictable sequence (each drill returns to original starting position)
2. INTERMEDIATE: moderate difficulty (faster tempo within & between shots)
 - BASIC (i.e. 2 groups of 5 drills)
 - BASIC drills use the individual or combinations of the Directional LEDs in a random sequence (each drill returns to original starting position)
3. ADVANCED: most difficult (fastest tempo within & between shots)
 - BASIC (i.e. 2 groups of 5 drills)
 - BASIC drills use the individual or combinations of the Directional LEDs in a predictable sequence (each drill returns to original starting position)

Quick Guide for the COACH 3

BASIC Group #1 DRILLS (A Sequence of Movements returning to BASE)

1. Split Step (i.e. Vertical moving RED LEDs only)
2. Split Step with land and move to the LEFT
3. Split Step with land and move to the RIGHT
4. Split Step with land and move T-L, T, T-R, T, T-L, T, T-R, T
5. Split Step with land and move B-L, B, B-R, B, B-L, B, B-R, B

BASIC Group #2 DRILLS (A Sequence of Movements returning to BASE)

1. Split Step with land and move L-R, R, L-R, L, L-R, R, L-R, L
2. Split Step with land and move B-R, T-R, B-L, T-L, B-R, T-R, B-L, T-L
3. Split Step with land and move T, B, R, L, T, B, R, L
4. Split Step with land and move B-L, T-R, B-R, T-L, B-L, T-R, B-R, T-L
5. Split Step with land and move B-R, T-R, B-L, L, R, L-R, T-L-R, T-L

IDENTIFYING which Drill Group, DRILL & LEVEL is active

1. BEGINNER => bottom Directional LED is ON
2. INTERMEDIATE => bottom & right Directional LEDs are ON
3. ADVANCED => bottom, right & top Directional LEDs are ON
4. 1st Group DRILL #1 => top RED LED is ON
5. 1st Group DRILL #2 => top 2 RED LEDs are ON
6. 1st Group DRILL #3 => top 3 RED LEDs are ON
7. 1st Group DRILL #4 => top 4 RED LEDs are ON

8. 1st Group DRILL #5 => top 5 RED LEDs are ON
9. 2nd Group Drills selection will turn ON the Left Directional GREEN
10. 2nd Group DRILL #1 => top RED LED is ON
11. 2nd Group DRILL #2 => top 2 RED LEDs are ON
12. 2nd Group DRILL #3 => top 3 RED LEDs are ON
13. 2nd Group DRILL #4 => top 4 RED LEDs are ON
14. 2nd Group DRILL #5 => top 5 RED LEDs are ON
15. RANDOM selection will BEEP twice and FLASH the Left Directional GREEN LED

PUSH BUTTON CONTROLS

1. To increment Drill # Quickly PRESS & RELEASE the RED Button
2. To change LEVEL of Difficulty Slowly PRESS & RELEASE the RED Button
3. To change between Groups 1 & 2 Quickly PRESS & RELEASE the BLACK Button
4. To switch from FIXED to RANDOM PRESS & HOLD the BLACK Button until a Double BEEP occurs then RELEASE the BLACK Button

Other S³ products and Tennis Ball Machines



SSC concepts being used with various ball machines

1. Several ball machines including the Sports Attack have been tested with the RED LED portion of the SSC and software and hardware adjustments made so that the ball is emitted when the player is at the top of the hop.
2. This combination of the RED LED portion of the SSC and ball machine allows the player to extend their 'SSC learned movements' to the next level of complexity, that of going thru a timed movement and hitting a real ball.

3. The Playmate ball machine has been setup to emulate many of the LEVELS and DRILLS used by the SSC, thus making for a powerful family of teaching tools. The Playmate ball machine also has a RANDOM function that emulates the SSC RANDOM mode of operation for the more skilled players.
4. The same Video Option works for both the SSC & ball machine and can record both the player's movement and stroking/hitting skills, which can be analyzed to provide feedback to the player.
5. These types of feedback increase a player's motivation as they can see and measure their improvements against their previous executions.

Limited 3 Year Warranty

Sports Split Step provides product purchasers with a limited 3 year warranty for all products.

Limited 3 Year Warranty Clauses

1. In order to be eligible for Sports Split Step Limited 3 Year Warranty, product registration must be completed by the purchaser. The warranty of the purchased product is activated from the completion date of the product registration at Sports Split Step or from an authorized distributor. Sports Split Step reserves the right to determine the eligibility of the product registration if the registration process is delayed by the purchaser for more than three months after the original purchase date. Satisfactory proof is required to claim the warranty; for example, the invoice from the initial purchase.
2. The Limited 3 Year Warranty is for the original purchaser only. In the event of a sale or product transfer by the original purchaser to a third party, the warranty period shall be as described in the "After the Limited 3 Year Warranty Period".
3. If the product is operated under a normal operating environment during the warranty period and a malfunction is not caused by external or internal self-assembly, Sports Split Step reserves the right to exchange components, repair, or substitute the appropriate types of products at its discretion.
4. All replaced parts will be brand new parts. These can include but are not limited to: new components, modules, or substitute products for repairing.
5. When the product has exceeded the warranty period, warranty clauses, or is otherwise inapplicable to warranty (please refer to the "After the Limited 3 Year Warranty" section), maintenance service, replacement, shipment, and any other related charges might occur.

Other Exception Clauses

Sports Split Step guarantees its products against defects in materials and workmanship under limited conditions. However, under the following exceptions, Sports Split Step has no liability to provide warranty services for the repair or maintenance without charge.

1. Damages caused by accidental events, damages due to the human force or self-assembly, damages caused by negligence of maintenance or modification behaviors without authorized technical support.
2. Damages resulting from any natural disaster.
3. The appearance of a product due to dust, dirt and age, normal wear of mechanical components and accessories outside of the product itself.
4. Purchasers are responsible to pack the repair product in good condition and ship it to the original distributor/representative. Shipping charges must be paid by the sender.

After the Limited 3 Year Warranty Period

If the received products have exceeded the warranty time, Sports Split Step will still provide the related repair and or maintenance services. However, the owners of the products are responsible for the repair and or maintenance charges, the return shipping charges and any additional costs.

Trouble Shooting the Split Step Coach

Call Factory (530-272-7345) for any questions you might encounter.