

Critical Periods of Training Basic Athletic Skills

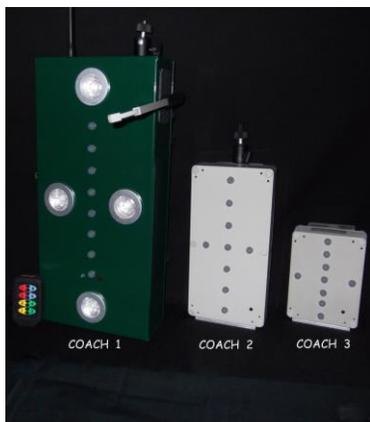
The page at the end of this article (from the USTA Player Development called 'High Performance U10 Training' March 24, 2011) shows 11 Basic Athletic Skills that the USTA feels our younger athletes need to develop, and the best age for developing these skills. Our Split Step Coach products (SSC) and Timing Light (TL) provide 'timed stimulus' signals for building these different skills. I will try and highlight our Sport Split Step [product](#)(s) and features that can help when training each of the particular skills. It is good to remember that the training devices can be used for groups (up to 25 at a time) as well as individuals.



Enhanced Tennis Twist



Close Up of Timing LEDs



Split Step Coach Series



Timing Light and Playmate

Coordination, balance, agility, Running, jumping, throwing (ages 6-10) -> -> The ET2 (Enhanced Tennis Twist), SSC1, SSC2, SSC3 (Split Step Coach series of products) provides audio and visual stimulus for 'shadowing' (movements without balls), for example: hopping, landing, moving in various directions, swinging the arm (as in a tennis stroke) or swinging a foot (as in a soccer ball kick). Video feedback using an i-PAD application called 'Bust a Move' makes for a 'fun time' as the kids love to view themselves executing their shadowing movements; this video feedback can be used throughout all the following progressions.

Sliding, gliding (ages 6-10) -> The SSC1 (Coach 1), SSC2 (Coach 2), SSC3 (Coach 3) have features that involve hopping, moving towards cones placed on the court, swinging the arms and kicking the feet and then returning to the starting position. The devices also have a selection of shadowing drills referred to as 'Patterns of Play', which involve moving to a series of separate locations on the court of play (or field of play) and not returning to a single starting position; these provide a starting point for visualizing the court size and extent.

Motor Learning (ages 9-12, 16-17) -> This is a good time to emphasize the timing of the split step (when to hop, which foot to land on, when to be at the contact point). The ET2 has a feature for timing both the split step and racket swing to contact point or a soccer foot/ball contact by using visual and audio cues or stimuli. Coaches can begin to teach the players the various grips for hitting a forehand, backhand, approach shots, volleys, overheads, and serves while 'shadowing' with the ET2 device providing the stimulus. This is a process referred to as Deep Practice in the book 'The Talent Code'. 'Deep Practice' is a term that breaks the learning into 3 pieces: 1) chunk it up, 2) repeat it, 3) feel it.

Motor Control (ages 9-11) -> The Enhanced Tennis Twist can be used to deliver properly timed 'one direction' balls of low speeds. The ball machine should be used with a Timing Light so that a correctly 'timed' start of the split step can be incorporated with each and every movement towards the 'hitting' location. Ball machines with a TL can deliver both the properly timed stimulus and ball with different directions, moderate spins, different heights and in a progressive fashion move the athlete thru various strokes at different locations on the court.

Speed of Reaction (ages 8-11) -> The SSC1, SSC2, SSC3 have features that provide 3 different levels of speed with which to accomplish various movements involved in 16 different drills. Coaches and players should start out at the Beginner level and then move thru the Intermediate level and onto the Advanced level. The drills are

shadowing drills that return the athlete to the starting position or 'patterns of play' that take an athlete thru a sport specific movement pattern across the court or field of play (not returning them to the same starting position). Ball machines with a TL can deliver both the properly timed stimulus and ball with different directions, heights, moderate spins and a progression that moves the athlete thru various strokes at different locations on the court. So we have a nice progression from shadowing to hitting/kicking balls, one in which we can fall back to shadowing movements in order to refine errors that may creep in when hitting balls. This process can be best described as 'Ignition', another term from 'The Talent Code' and as Daniel Coyle says, "requires energy, passion and commitment".

Rhythm/cadence and capacity (ages 11-14) -> Using the SSC1, SSC2, and SSC3 the athlete can develop smoothness and capacity thru constant repetition (10,000 times idea), while at the same time using video to provide feedback to the athlete so that they perform perfectly 95% of the time. This is a good time to introduce what is called the OPEN drills (Random in nature) as opposed to the previously used CLOSED drills (known directional sequences); the SSC provides easy selection of either mode of operation. The time spent by the coach can be minimized, as the coach need only schedule the training periods and begin the process that [Daniel Coyle](#) calls Master Coaching ('The Talent Whisperers' listen more and pay much attention to details).

Spatial awareness (ages 10-11) -> Using the SSC series of products the athlete can 'shadow' around the court with varying degrees of difficulty being provided by selecting the different skills levels (i.e. BEG, INT, ADV) for the SSC products. When striking balls the extent of the court can be made aware by selecting setups to push the athlete around the court, with the Timing Light providing the precise timing as to when to begin each of the split steps for each of the shots.

Endurance (ages 12-17) -> Both the SSC series of products and the TL (with ball machine and balls) can be used for longer periods of time allowing the athlete to coach to make sure that proper execution continues as their body's reach exhaustion.

Strength (ages 11-17) -> This is another important area for the SSC series of products. When used with a product referred to as a 'bungee cord' an athlete can build what is called 'sport specific muscle groups'. In other words, using the proper bungee cords attached to various parts/limbs/torso of the body we can cause the athlete to exert more effort in executing specific movements. The SSC provides the with timing that replicates those of professional players.

Speed (ages 6-7, 14-16) -> Another aspect of using the SSC is that cones are NOT required during the building of the previous skills, but when increases in speeds or distance-covered are desired, then the coach can use cones to push the limits of the athletes. Of course, maintaining perfect execution while increasing speed or distance is mandatory (i.e. 95% rule).

CRITICAL PERIODS OF TRAINING FOR "BASIC ATHLETIC SKILLS"

1st indicates best time for training that skill, 2nd indicates additional periods for training that skill

Age	5 yrs	6 yrs	7 yrs	8 yrs	9 yrs	10 yrs	11 yrs	12 yrs	13 yrs	14 yrs	15 yrs	16 yrs	17 yrs
Coordination, Balance, Agility		1 st	2 nd					2 nd	2 nd				
Running, Jumping, Throwing		1 st											
Sliding, Gliding		1 st											
Motor Learning			2 nd	2 nd	1 st	1 st	1 st	1 st				2 nd	2 nd
Motor Control			2 nd	2 nd	1 st	1 st	1 st				2 nd	2 nd	2 nd
Speed of Reaction			2 nd	1 st	1 st	1 st	1 st						
Rhythm, Cadence, Capacity			2 nd	1 st	1 st	1 st							
Spatial Awareness					2 nd	1 st	1 st	2 nd	2 nd				
Endurance	2 nd	1 st											
Strength					2 nd	2 nd	2 nd	2 nd	1 st				
Speed		1 st	1 st					2 nd	2 nd	1 st	1 st	1 st	