

Criteria to initiate program:

* Proper alignment and eccentric control with bilateral and unilateral closed chain movements.
* Complete 4 week return to jogging program to build aerobic base to prepare for more intense runs. Athlete should be able to jog for 10 consecutive minutes prior to starting program. Goal is not speed or distance when jogging 10 minutes but having a solid aerobic foundation to build upon.
* Single leg single hop test and single leg press >70% on Limb Symmetry Index.

Key notes:

* Perform program on every other day basis to allow for 24-48 hours recovery time.
* Perform each level 2-3 sessions before moving on to next level- move to next level once able to complete with proper mechanics, good strength, and without symptoms.
* Athletes will progress at different rates through the program dependent upon confidence, degree of inflammation, severity of injury, age, and type of surgical intervention. Pain and swelling are the best guides to determining tolerance at each phase and whether an athlete should progress to the next step. Progression through the phases is combined evaluation and guidance of rehab provider and coach.
* Setbacks are common during return to sport progressions and sound judgment should be used regarding an extra rest day(s) or regressing back to prior phase if pain and swelling are problematic.
* Continue with strengthening exercises 2-3 times a week while progressing through program- strengthening exercises may overlap days of program and be performed after tennis program; however, must have one complete rest day per week.
* Active warm-up to initiate each session with cooldown following. Ice for 10-15 minutes following session as pain and swelling dictate.

Active warm-up

Pre-running drills (15 yards down and back each): jogging, skipping, side shuffle, backpedal, high knees, butt kicks, grapevine

Dynamic stretching (10 yards down and back each): single leg RDL, quad stretch, side lunge, forward lunge, reverse lunge, knee tucks, glute stretch, inchworms, arm swings

Footwork drills: speed ladder or hurdles

Cool down

 5-10 minutes global upper extremity, trunk, and lower extremity stretching

Ice for 10-15 minutes as pain and swelling dictates

Phase I:

* Goal: build confidence with running, linear running drills with acceleration and deceleration, build confidence with swing technique, no participation in team drills
* Limb Symmetry Index: >70% with single leg single hop and single leg press
* Level 1:
	+ 60 yard run at 50-60% intensity x 10 repetitions (20 yard acceleration with 50-60% as top speed and then gradual deceleration), 20-25 second rest time
	+ 10 yards backpedal run at 50% intensity x 10 repetitions, 20 second rest time
* Level 2:
	+ 60 yard run at 75% intensity x 8 repetitions (decrease acceleration distance to 10 yards and deceleration distance to 10 yards), 20-25 second rest time
	+ 10 yard backpedal run at 60-75% intensity x 5 repetitions
	+ Sprint transition at 50% intensity (5 yards forwards/5 yards backwards) x 5
	+ Sprint transition at 50% intensity (5 yards backwards/5 yards forwards) x 5
	+ Focus on planting with involved leg at transition
* Level 3:
	+ 40 yard run at 75% intensity x 10 repetitions (5-10 yard acceleration and deceleration distance), 20-25 second rest time
	+ 10 yard backpedal run at 60-75% intensity x 5 repetitions
	+ Sprint transitions at 60-75%
		- 5 yards forward/5 yards backwards x 5-10
		- 5 yards backwards/5 yards forwards x 5-10
	+ “S-run” at 50% intensity for 15-20 yards x 5-10 repetitions
		- Start with large interval between cones and gradually decrease distance for changing directions
	+ Box drills at 50-60% x 3 repetitions each direction
		- Cones mark box that is 15-20 feet each side
		- Forward, shuffle, backpedal, shuffle

Sport specific: Shadow swinging with racket

* Focus on footwork
* Level 1: 3 x 30 seconds for 2-4 rounds with 30 seconds rest break between repetitions
* Level 2: 3 x 60 seconds for 2-4 rounds with 30 seconds rest break between repetitions

Phase II:

* Goal: speed development and running technique, initiate change in direction with visual stimulus of place to change direction
* Limb Symmetry Index: >80% with single leg single hop and single leg press
* Lateral cone slalom: lateral footwork through cones across entire width of court (roughly 10-12 cones) with racket in hand, forward and backwards through is equal to one repetition
* Linear repeaters: start at doubles sideline and sprint to centre service line, backpedal to starting position, sprint across court to opposite double service line, backpedal to center line, sprint forward to double service line
* Horizontal repeaters: start at doubles sideline facing net, shuffle to centre service line, sprint to starting position, turn and sprint across court to opposite double service line, shuffle back to center line, sprint back to double service line, turn and sprint back to starting position
* Level 1:
	+ 20-25 second rest break between repetitions
	+ 40 yard run at 80% intensity x 10 repetitions
	+ Sprint transitions at 80% intensity x 5 each direction (forward to backwards and backwards to forwards, each at 5 yard distance)
	+ Lateral cone slalom at 50% intensity x 3 repetitions
	+ Linear repeaters at 50% intensity x 2-4 repetitions
	+ Horizontal repeaters at 50% intensity x 2-4 repetitions
	+ Box drills at 60-75% intensity x 3 repetitions each direction
		- Cones mark box that is 15-20 feet each side
		- Forward, shuffle, backpedal, shuffle
* Level 2:
	+ 20-25 second rest break between repetitions
	+ 40 yard run at 90% intensity x 10 repetitions
	+ Lateral cone slalom at 75% intensity x 3 repetitions
	+ Linear repeaters at 65-75% intensity x 2-4 repetitions
	+ Horizontal repeaters at 65-75% intensity x 2-4 repetitions
	+ Box drills at 75% intensity x 3 repetitions each direction
* Level 3:
	+ 20-25 second rest break between repetitions
	+ 40 yard run at 90% intensity x 12-15 repetitions
	+ Lateral cone slalom at 75% intensity x 4 repetitions
	+ Linear repeaters at 75% intensity x 4 repetitions
	+ Horizontal repeaters at 75% intensity x 4 repetitions
	+ 10 yard backpedal run at 50% intensity into sprint with reacting to direction (lateral, forward, forward angle)
* Level 4:
	+ 20-25 second rest break between repetitions
	+ 20 yard run at 90% intensity x 12-15 repetitions
	+ Lateral cone slalom at 80% intensity x 4 repetitions
	+ Linear repeaters at 75% intensity x 4 repetitions
	+ Horizontal repeaters at 75% intensity x 4 repetitions
	+ 10 yard backpedal run at 75% intensity into sprint with reacting to direction (lateral, forward, forward angle)
	+ Backpedal into turn and run at 50% intensity
	+ Linear run at 50% into jump stop
		- Start with athlete chosen stop and progress to visual or verbal instruction to stop
* Level 5:
	+ 20-25 second rest break between repetitions
	+ 20 yard run at 90-100% intensity x 12-15 repetitions
	+ Lateral cone slalom at 80-90% intensity x 4 repetitions
	+ Linear repeaters at 75-85% intensity x 4 repetitions
	+ Horizontal repeaters at 75-85% intensity x 4 repetitions
	+ 10 yard backpedal run at 75-85% intensity into sprint with reaction to directions (lateral, forward, forward angle)
	+ Backpedal into turn and run at 60-75% intensity
	+ Linear run at 60-75% into jump stop
		- Start with athlete chosen stop and progress to visual or verbal instruction to stop

Sport specific: Ball off wall

* Level 1: 3 x 10 swings from service line progressing (21 feet) to 3 x 20 swings
* Level 2: 3 x 10 swings from baseline (39 feet) to 3 x 20 swings

Phase III:

* Goal: build repeated sprint ability, introduce sport-specific demands with participation in team drills, change in direction with reactive or auditory stimulus, linear speed at 90-100% intensity, multidirectional speed at 80-100%
* Spider Run test: position 5 balls on tennis court (one on each corner where baseline and singles sideline meets, one on each side where singles sideline and service line meet, and one at center service line intersection), start at center hash mark on middle baseline

and retrieve all 5 tennis balls each time returning to center hash mark to drop the ball, retrieve in counterclockwise direction

* Level 1:
	+ 20-25 second rest break between repetitions
	+ Lateral cone slalom at 90-100% x 4 repetitions
	+ Linear repeaters at 90-100% x 4 repetitions
	+ Horizontal repeaters at 90-100% x 4 repetitions
	+ Backpedal into turn and run at 75-85% intensity
	+ Linear run at 75% intensity into jump stop
	+ Spider Run at 50% x 2-4 repetitions
* Level 2:
	+ 20-25 second rest break between repetitions
	+ Lateral cone slalom at 100% x 4 repetitions
	+ Linear repeaters at 100% x 4 repetitions
	+ Horizontal repeaters at 100% x 4 repetitions
	+ Backpedal into turn and run at 80-90% intensity
	+ Linear run at 80% intensity into jump stop
	+ Spider Run at 60-75% x 2-4 repetitions
* Level 3:
	+ 20-25 second rest break between repetitions
	+ Lateral cone slalom at 100% x 3 passes
	+ Linear repeaters at 100% x 3-4 repetitions
	+ Horizontal repeaters at 100% x 3-4 repetitions
	+ Backpedal into turn and run at 90-100% intensity
	+ Linear run at 80-90% intensity into jump stop
	+ Spider Run at 75-85% x 2-4 repetitions

Sport specifics: Rallies

* Goal rest time of 20-25 seconds between repetitions
* Level 1: 2-4 rounds of service line rallies starting at 50% intensity progressing to 75% intensity
	+ 3 x 45 seconds at 21 feet progressing to 3 x 90 seconds
* Level 2: 2-4 rounds of baseline rallies starting at 50% intensity progressing to 75% intensity
	+ 3 x 45 seconds at 39 feet progressing to 3 x 90 seconds
* Level 3: 2-4 rounds of rallies at 100% intensity
	+ 2 x 1 minute at service line and 2 x 1 minute at baseline
	+ Progress to 2 x 3 minutes at service line and 2 x 3 minutes at baseline

Phase IV:

* Goal: maximal speed including changes in direction, acceleration, and deceleration, technical skills progression and participation in team drills
* Limb Symmetry Index: >90% on single leg single hop and single leg press
* Participation in team conditioning at full intensity

Sport specific: Game simulated play with addition of serving

* Level 1: 50-75% intensity
	+ 2 x 1 minute service rallies
	+ 2 x 1 minute baseline rallies
	+ Serving: 3 x 5 repetitions progressing to 3 x 15 repetitions
* Level 2: 75-100% intensity
	+ 2 x 1 minute service rallies
	+ 2 x 1 minute baseline rallies
	+ Serving: 3 x 5 repetitions progressing to 3 x 15 repetitions

Phase V:

* Goal: full intensity in training sessions with all scenarios (change in direction, speed, returning serves, etc) to prepare for game play
* Participation in team conditioning at full intensity (spider run test, linear and horizontal repeaters, etc).

Sport specific: Simulated game/scrimmage