

Tennis Strength and Conditioning

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Tennis physical requirements

Strength

Strength is the basic physical quality that supports all other qualities (speed, endurance, power).

Strength is necessary to prevent overuse muscular and articular injuries.

Strength is needed for generating power for serving, high speed rallying and quick accelerations and decelerations when moving around the court.

Leg strength is necessary for moving quickly around the court and for generating power for the serve, forehand and backhand.

The core muscles – abdominal muscles (rectus and obliques) and spinal extensors make the connection between the lower body and the upper body. The legs strength and power transmit to the torso, shoulder and arms through the core. The core muscles are also directly involved in the abdominal flexion needed for a powerful serve and the rotational movement of the trunk when hitting the forehand and the backhand.

The muscles around the shoulders and elbows are generally prone to injuries when training and competing at a high level and need good levels of strength and strength-endurance to match up the legs and core strength.

The chest and back muscles are responsible for powerful racquet swings under control.

Forearms and hands muscles are responsible with holding and maneuvering the racquet when striking the ball, so they also need to be strong.

Finally, the calves muscles are constantly working for any action you do when playing tennis: running, serving, forehand or backhand.

Speed

The tennis court is large and the ball is fast. Great speed is needed to perform at a top level.

Types of speed:

- Starting speed – when initiating an action like sprinting or hitting
- Execution speed – how fast you are able to complete on single movement
- Reaction speed – how fast you are able to respond to sudden ball coming from the other side (essential near the net when under pressure from the opponent)

Agility

Is the ability to move swiftly and change directions quickly during play.

Endurance

Training sessions last many hours on a daily basis, matches can also last more than 2 hours, and the intensity is usually increasing as you advance in a match.

Basic cardiovascular endurance enables you to go on for hours at a time and helps you recover faster between the games.

Anaerobic endurance helps you to keep up the pace for long rallies that go back and forth for more than 10 exchanges and quickly recover between points.

Strength and power endurance enable you to maintain peak power for the strikes and court movement late in the third set and more.

Speed endurance helps you maintain the pace necessary to win long rallies.

Flexibility

Flexibility is important for free and comfortable movement in the shoulders and lunging and splitting at the hips to reach the wide line balls.

Equipment needed:

1. Gym Rings – (<https://www.aussiefitness.org/mg-gym-rings>)
2. Kettlebells – (8, 10, 12, 16, 20, 24 kg – depending on your strength)
3. Elastic bands (2 m long loop, 4 different resistance levels)
4. Med ball (2, 3 kg)
5. Cylinder grip (for forearms strength)
6. Cones (6 cones)

Tennis Specific Strength & Conditioning Training

Strength training

General strength training

I highly recommend every athlete follows a general strength training program until they develop a good strength base. Decent strength means that one can perform pull-ups (7+ for boys, 2+ for girls), push-ups (30+ for boys, 15+ for girls) and 5 sets of 20 bodyweight walking lunges are easy to perform.

Find the Master Strength Training Program here:

<https://www.aussiefitness.org/fitness-programs>

(copy link and paste in a web browser)



Tennis specific strength training (Power moves have an *)

Frequency – train each body part 2-3 times every week.

Ex you can do two longer full body sessions or four split sessions every week.

Full body sessions would last between 50-75 minutes, split sessions between 35-50 minutes.

You can also do multiple shorter sessions when you choose 3-4 drills and perform 3-4 sets for each for a total of 9-16 sets done in 20-30 minutes.

Intensity – Do sets of 6 to 12 repetitions. Lower reps emphasize strength gains, while higher reps in this range emphasize muscle mass and work capacity

Example: Do a session with lower reps (6-7) and another session with higher reps (10-12)

In the same session, for a particular drill, do 2 sets x 6 reps with higher load, followed by 2 sets x 12 reps with lower load.

Difficulty: For most of your sets you should use a load and a number of reps that would allow you to be able to do 1-3 extra reps. In a training plan this is expressed as RM – Repetition Maximal.

Example: When you do a set of 7 reps, use a load that would have allowed you to do 8-10 reps to complete failure. So stop short of complete failure. Ex. - Use a 9 RM load and complete a set of 7 reps.

Very important: Aim to increase the load (difficulty) every week.

Volume - Perform 3-4 sets per major movement/body part for one training session. Warm up sets don't count towards this number.

Below you can see a table with specific strength training drills. Choose one drill per body part per session. You will see some examples of strength training programs below the table.

Movement /Body part	Drills							
Squatting /Legs (add weight)	Bulgarian Squat (one foot suspended)	Split foot	Walking lunge	Box step-up	Lunge forward*	Box jump	split step*	
Hip Extension /Hips & lower back	Hip extension (Gym rings both feet)		Hip thrust (Gym Rings both feet)		Kettlebell swing*			
Arms forward press /Chest	Push-ups (Gym Rings)	Push-ups and pike* (Gym Rings)	Chest flies (Gym Rings)	Archer push-up (Gym Rings)	One arm push-up (Gym Rings)			
Arms Pull & Row/ Back	Pull-ups (Gym Rings)	Rows (Gym Rings)	Archer rows (Gym Rings)		Wide rows (Gym Rings)			
Arms Vertical Press /Shoulders	Kb vertical press	Shoulder flies (Gym Rings)	Y-flies (Gym Rings)	Rear delts flies (band)	Inverted vertical rows (Gym Rings)			
Shoulder internal & external rotation	Elbows wide external rotation (band)		Elbows wide (external rotation)		Elbows close external rotation (band)		Elbows close internal rotation (Band)	
Trunk flexion & rotation / Abs	Knee raises (suspended)		Superman (Gym Rings)	Dynamic plank (Gym Rings)	Trunk side rotation (band)			
Elbow extension/ Triceps	Triceps extension (Gym Rings)		Triceps extension (band)					
Elbow flexion/ Biceps	Biceps flexion (Gym Rings)		Biceps flexion (Kb)		Biceps flexion (bands)			
Plantar flexion / Calves	One leg calf raises (add weight)							
Hand and wrist flexion & extension/ Forearms & hands	False grip pull-up/row	Cylinder grip elbow flexion (Kb/Gym Rings/band)	Cylinder grip elbow extension behind back (Kb/band)	Cylinder grip shoulder flies (band)	Cylinder grip wrist radial flexion (with Kb)	Cylinder grip wrist ulnar flexion (with Kb)	Ball grip pronation flexion (Kb/band)	
Full body	Kb snatch*	Kb Clean&Jerk*		Kb Windmill				

Example of programs

Full body 2-3 sessions a week

Training 1

	Movement/Body part	Drill	Sets x Reps	Load	Obs
1	Squatting /Legs (add weight)	Bulgarian Split Squat (one foot suspended)	3 x 8	10 RM	
2	Hip Extension /Hips & lower back	Hip extension (Gym rings both feet)	3 x 8	10 RM	
3	Arms forward press /Chest	Push-ups (Gym Rings)	3 x 8	10 RM	3 & 4 Superset
4	Arms Pull & Row/ Back	Rows (Gym Rings)	3 x 8	10 RM	3 & 4 Superset
5	Arms Vertical Press /Shoulders	Kb vertical press	3 x 8	10 RM	
6	Shoulder internal & external rotation	Elbows wide external rotation / external rotation (band)	3 x 8	10 RM	Superset internal & external rotation
7	Trunk flexion & rotation / Abs	Knee raises (suspended)	3 x 8	10 RM	
8	Elbow extension/ Triceps	Triceps extension (Gym Rings)	3 x 8	10 RM	8 & 9 Superset
9	Elbow flexion/ Biceps	Biceps flexion (Gym Rings)	3 x 8	10 RM	8 & 9 Superset
10	Plantar flexion / Calves	One leg calf raises (add weight)	3 x 20	BW	
	All 30 sets should take about 60 minutes				

Training 2

	Movement/Body part	Drill	Sets x Reps	Load	Obs
1	Squatting /Legs (add weight)	Box step-up	2 x 6 1 x 12	7 RM 13 RM	
2	Hip Extension /Hips & lower back	Kettlebell Swing	3 x 12	15 RM	
3	Arms forward press /Chest	Chest flies (Gym Rings)	3 x 6	7 RM	3 & 4 Superset
4	Arms Pull & Row/ Back	Pull-ups (Gym Rings)	3 x n	BW	3 & 4 Superset
5	Arms Vertical Press /Shoulders	Shoulder flies (Gym Rings)	3 x 10	12 RM	
6	Trunk flexion & rotation / Abs	Dynamic plank (Gym Rings)	3 x 60"	BW	Up-down pulse Twist L/R Circles L/R
7	Elbow extension/ Triceps	Triceps extension behind back (Cylinder grip with band)	3 x 8	10 RM	7 & 8 Superset
8	Elbow flexion/ Biceps	Elbow flexion (Cylinder grip with band)	3 x 8	10 RM	7 & 8 Superset
9	Plantar flexion / Calves	One leg calf raises (add weight)	3 x 20	BW	
10	Full body	Kettlebell windmill			
	All 27 sets should take about 50 minutes				

Mini session

	Movement/Body part	Drill	Sets x Reps	Load	Obs
1	Full body	Kettlebell Clean & Jerk	4 x 6 (L/R)	8 RM	
2	Arms forward press /Chest	Push-ups (Gym Rings)	3 x 10	12 RM	
3	Arms Pull & Row/ Back	Pull-ups (Gym Rings)	3 x n	BW	
4	Trunk flexion & rotation / Abs	Trunk side rotation (band)	3 x 8 (L/R)	10 RM	
	All 13 sets should take 20-25 minutes				

Power training

Use Med balls 1, 2 or 3 kg heavy.
Aim to throw as far as possible each single throw.

Do 2-4 drills of 3-4 sets of 5-8 throws each session.
You should be well warmed up before a power training session.

Train 2-3 times per week after tennis practice, agility practice or strength training practice.



Drills:

1. Forward overhead two hands throw (like a lineout in soccer)
2. Backward throw between the legs
3. Forward throw between the legs
4. Sideway throw Left and Right
5. One arm shoulder throw

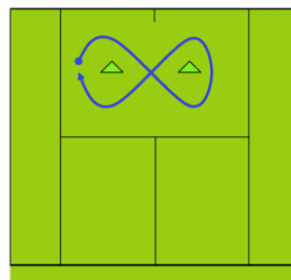
Footwork, speed & agility training

Tennis specific drills

When training footwork and agility, the main goal is to improve continuously week by week.

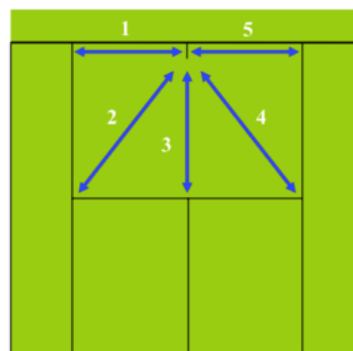
You can do 1-2 drills before or after your tennis practice. Practice 2-4 sessions a week.

1. Figure 8
 - 155 cm 2 cones
 - 12 8s in 30 s is pretty good
 - For 30 sec
 - 1 min rest
 - 3-4 sets



Tips: bend knees, step wide with the outside foot and lean your body towards the new direction when changing direction

2. The spider
 - Place a racquet behind the back line in the middle
 - Place 5 small cones with a ball on to on the lines intersection as per drawing
 - The players will run to pick up each ball and



place it on the racquet.
20 seconds good for 12-13 yo kids
16-17" good for 16 yo juniors
13-14" extremely high level
3-4 sets, 1 minute rest in between

Tips: change body direction before picking the ball. When changing direction, stay low, step wide with the outside leg and lean your body towards the new direction

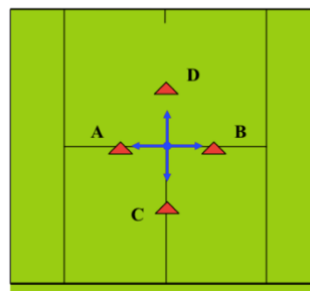
3. One bounce

The player stands in the middle of baseline
The partner (coach) throws one ball anywhere in the no man's land
The player split steps, and runs to catch the ball before it bounces the second time; he gently throws the ball back to the coach and recovers to the initial position
Do 10 – 20 throws, than rest 30-60 seconds. Complete 3-4 sets

Tips: Do the split step, when the coach initiates the throw

4. ABCD

Set up 4 cones as per the drawing below
The coach makes a call (A, AB, ABAC, etc) and the player touches the cones with one hand as quickly as possible.
Allow 3-5 seconds recovery. Do 10-20 calls, 3-4 sets.



Same tips as for the spider run.

On average, top tennis players change directions every 1.1 seconds – that's 4.2 times per point. They use 300 to 600 maximal bursts of energy (or explosive movements) per match.

The best time to start your split jump is as your opponent starts to initiate their forward swing.

Footwork, agility and speed endurance training

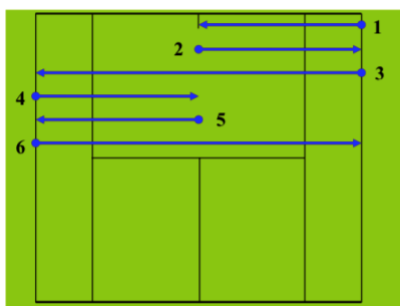
The difference between these drills and the ones above is that they are more exhausting and also require speed endurance.

Perform one drill 3-5 times after your tennis practice. Do 2-4 sessions a week.

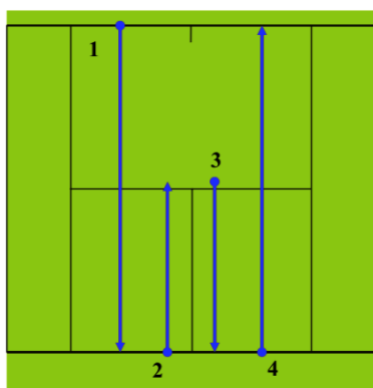
The goal is to improve your time week by week.

The player should perform each drill as quickly as possible

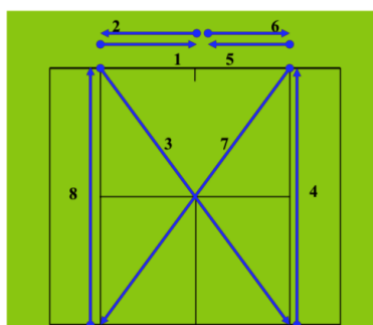
Drill 1: (2 and 4 are side shuffles, 1,3,5,6 are sprints)



Drill 2 (2 is back pedaling, 1,3,4 are sprints)



Drill 3 (1,2,5,6 are side shuffles, 4, 8 are back pedaling, 3 and 7 are sprints)



Drill 4 Catch-‘em all

The coach is on one side of the net, mid-court with 3-4 balls in his pockets

The player is in the middle of the back line.

The coach throws a ball over the net, the player has to catch it before it bounces twice, throw it overarm back nicely to the coach, then recover to the back line.

Throw 10-25 balls. Rest 1 minute. Do 3-4 sets.

Cardiovascular endurance training

Train this after tennis practice sessions, after strength training sessions or as stand-alone sessions.

MAS shuttle run

MAS stands for Maximum Aerobic Speed

Set two lines or cones 10 metres apart.

The player starts at one line. The coach needs a timer.

At “Go!” the player runs to the far line, steps on it, and runs back behind the start line.

The player runs every 10 seconds. The player should aim to run fast, to get 3-4 seconds rest before the next shuttle.

Do one set for 2-3 minutes.

Rest one minute between sets. Do 3-4 sets in a session.

To progress, increase the running distance every week.

For this exercise the player runs fast (85-90 % of max speed) to aim to rest for 3-4 seconds for 10 seconds intervals.

You can also do 15 seconds intervals for longer distances and aim for a 5 seconds rest.

Rope jumping

Jump with both feet at one, or from one to another.

Jump the rope for sets of 100 – 300 jumps, or sets of 30-90 seconds.

Complete 5 sets per session.

Flexibility training

Do this at the end of each or any kind of session.

Use the gym rings for hip splits and shoulder extensions.

Stretch until you feel a light pain, then maintain for 30-45 seconds trying to breathe deeply and relax your stretched muscles. Rest for 10-15 seconds.

Stay on one stretch for 2-4 minutes.

On my website you will find videos showing all drills mentioned in this article.

For Gym Rings and Kettlebells detailed technique videos please look at my course

<https://www.aussiefitness.org/members-area> (only \$19 Aud)