



IMG PHYSICAL THERAPY

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PREVENTION OF TENNIS INJURY HOME PROGRAM

Tennis is an intense, long-duration sport which involves rapid direction changes, level changes, and rotation of the core. These factors, combined with the forces exerted on the arm and wrist from connecting with the ball, cause a litany of injuries throughout the body. Here are some simple ways to prevent these injuries before your next hitting session, league, or competitive season.

This program is designed to help prevent an injury while playing tennis and to progressively increase your ability as an athlete to full athletic competition as QUICKLY and SAFELY as possible.

****Warm-up and Stretching are crucial before doing sport specific activities.****

Highly competitive athletes who want to return to competition quickly, tend to increase the Program, thus dramatically increasing the chance of injury and may slow your return to full Tennis activities.

During the Home Program, you may experience soreness and a dull, diffuse, aching sensation in the muscles and tendons (this is normal).

****If sharp pain is experienced, particularly in a joint, you should stop all sport activities until the pain ceases.****

-If pain persists, you should contact your therapist or doctor immediately.

-These exercises should be done 3 days per week.

-Warm-up will vary from person to person. You should jog or bike until developing a light sweat, then progress to stretching exercises.

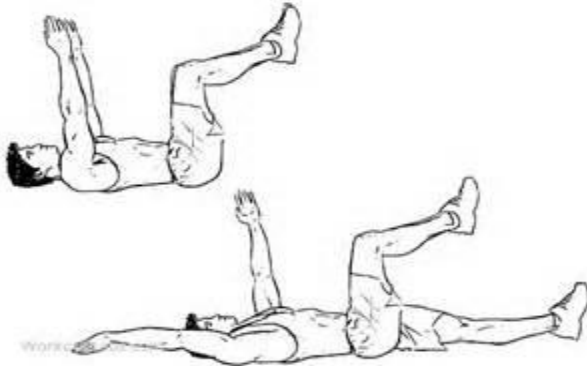
-On your days off from the Tennis Program, you should do Cardio-vascular training, light stretching, and core-stability exercises.

-Ice for 15 Minutes after the program and exercises to minimize swelling and pain to any joints that experience soreness while or after completing the program.

PREVENTION EXERCISES

Low Back Pain - Commonly occurs from the "loading" phase of hitting, where the back is extended, rotated, and bent to the side

"Dead Bug" - Performed on back with hips + knees bent and arms extended above torso - Rapidly pulsate the limbs in a back-and-forth motion (30s sets - performed 3-5x)



"Planks" - Standard planks, side-planks, Swiss-ball planks - Performed in 10-60s holds up to 6 times

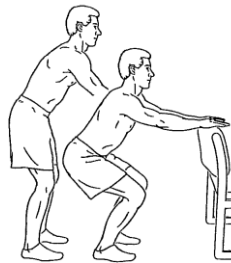


Knee and Ankle Injuries - Massive forces are put through the knee and ankle during tennis play, causing a variety of injuries. Multiple possible injuries can be prevented with just a few exercises.

"Balancing on an Unstable Surface" (Single-Leg + Slightly Bent) - Balance for period of 20-60s up to 5x per leg on sand, a pillow, or other squishy surface.



"Squats" - Performed in 3-5 sets of 5-8 reps. Add minimal amount of weight if needed.



"Plyometric Jumping" - Jumping rapidly straight up and straight down, ensuring legs are kept straight during push-off and landing - Performed in 60s sets up to 5x.



Elbow/Wrist - Elbow is common site of injury due to overuse of wrist flexors and extensors.



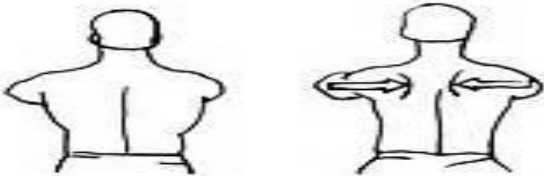
“Kettle Bell Holds” - Hold minimal to moderate weight kettle bell with arm extended straight in various positions in front of the body and varying wrist positions - Performed 30-60s holds 3-5x.



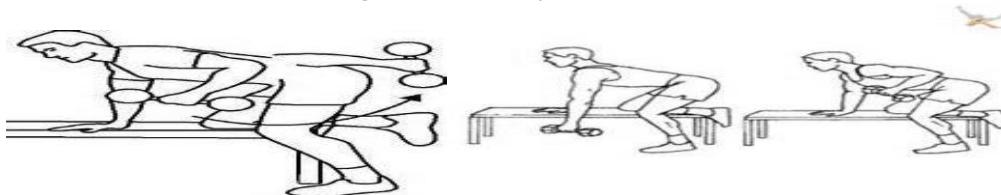
“Quick Throws w/ Medicine Ball” (Two-Handed) - Throw a moderate weight medicine ball against an appropriate wall as quickly as possible and as forcefully as possible using wrist and elbows only.

Shoulder - Up to twice the body's weight can be placed upon the shoulder during overhead activities. Combined with the shoulder being the most unstable joint in the body, the shoulder is particularly vulnerable to injury in tennis players.

“Scapular Retractions” - Performed with resistance band - Pinch shoulder blades with arms in a variety of positions (2 sets of 15 repetitions at each position).



“Resisted Shoulder Flexion and Triceps Extension/Rows” - Performed with minimal/moderate weight in 5-8 repetitions and 3-5 sets.



Sample Tennis Muscular Strength Training Workout

Table 3
Program Design for Maximum Strength Development

Principal exercises:

Parallel squat: This exercise is crucial in developing overall maximum strength in lower extremities and maintaining overall condition.

Intensity: 4–8 reps at 50–80% of 1RM

Sets: 3–4

Rest periods between sets: 2–3 min

Bench press and seated pulley row: Both exercises are crucial in developing maximum strength in the upper extremities and in stabilizing the balance between agonist and antagonist muscles.

Intensity: 3–8 reps at 60–85% of 1RM

Sets: 3–4

Rest periods between sets: 2–3 min

Romanian dead lift: This exercise is important for developing strength in the gluteus and the lower back muscles.

Sets: 3 (6–8 reps at a weight well within capacity, i.e., at which a player probably could perform 3 or 4 additional reps)

Rest between sets: 2 min

Front and side lunge: This exercise is important for developing overall strength in the legs and in preventing knee injury (2, 22).

Sets: 3–5 (8–10 reps with additional weight of 10–15 kg)

Rest periods between sets: 2–3 min

Days per week: 1–2

Note: 3 to 5 weeks may be sufficient to develop maximum strength (10, 27).

Sample Tennis Workout for Muscular Power Training

Table 4
Program Designs for Power Development

Program A (days per week: 1–2):

Half Squat (45°): This exercise is very efficient in building powerful legs.

Intensity: 4–8 reps at 40–80% of 1RM

Sets: 3–4

Rest between sets: 3–4 min

Clean: This exercise is important for developing strength in the gluteus and lower back and for general body power.

Intensity: Weight well within capacity, i.e., weight at which a player could probably perform 1 or 2 additional reps.

Sets: 3–4

Reps: 3–4

Rest between sets: 4–5 min

Bench press: This exercise is vital in increasing power in the upper body muscles.

Intensity: 4–6 reps at 40–70% of 1RM

Sets: 3–4

Rest between sets: 4–5 min

Throwing medicine balls (3–4kg)—front, overhand, backhand, side hand: This exercise is important for developing and maintaining arm speed.

Intensity: maximum speed

Sets: 3–4

Reps: 10

Rest between sets: 2 min

Days per week: 1–2

Note: 3 to 4 weeks are normally sufficient to produce increments in power performance (18).

Program B (days per week: 1–2):

Vertical jump with extra loads (± 10 –20 kg): This exercise is crucial for developing powerful legs and jump ability.

Intensity: maximum power

Sets: 3–4

Reps: 5

Rest between sets: 3–4 min

Changes in direction with extra loads (5–10 kg): This exercise is useful in developing acceleration and deceleration.

Intensity: maximum speed

Time of set: 10–15 s

Sets: 3–6

Rest between sets: 1–2 min

Bounding with extra loads (5–10 kg): This exercise increases reactive power in the legs.

Intensity: maximum speed

Distance: 30 m

Sets: 3–6

Classic plyometric training (step, hip-hop, drop jump, side jump, etc.): These exercises are vital in improving overall explosive power in the lower extremities.

Sets: 3–4

Reps: 5–10

Rest between sets: 2–3 min

Sprints: These exercises are important in developing acceleration.

Sets: 3–6 (15–20 m); or two-handed medicine ball (3–5 kg) chest throw followed immediately by a powerful acceleration

Rest between sets: 3–4 min

Specific exercises with the racquet: Simulate backhand and forehand with extra loads on the racquet of about 80–100 g. Afterwards, players should perform normal backhand and forehand to readapt to normal movement sensibility.

Intensity: maximum speed

Sets: 4–6 for each exercise

Reps: 8–10

Rest between reps: 3–4 s

Rest between sets: 1–2 min

Note: 3 to 4 weeks are normally sufficient to produce increments in power performance (18).

Sample Tennis Workout for Muscular Endurance Training

Table 5
Program Design for Muscular Endurance Development

Program A (days per week: 1–2):

Parallel squat: This exercise is important in the maintenance of overall conditioning in lower extremities.

Intensity: 15–25 reps at 40–50% of 1RM

Sets: 3–4

Rest between sets: 1–2 min

Bench press: This exercise is very important in enhancing local muscular endurance in arms and rear shoulders.

Intensity: 15–18 reps at 50% of 1RM

Sets: 3–4

Rest between sets: 1 min

Throwing medicine balls (3–4kg): **front, overhand, backhand, side hand**

Sets: 3–4

Reps: 15–20

Rest between sets: 1 min

Program B (days per week: 1–2):

Changes in direction with extra loads: 5–10 kg

Intensity: maximum speed

Time of set: 20–30 s

Sets: 3–4

Rest between sets: 1 min

Classic plyometric training (step, hip-hop, drop jump, side jump)

Sets: 3–4

Reps: 10–12

Rest between sets: 1 min

Specific exercises with the racquet*

Intensity: maximum speed

Alactic anaerobic metabolism:

Time: 5–7 s

Sets: 3–5

Lactic anaerobic metabolism:

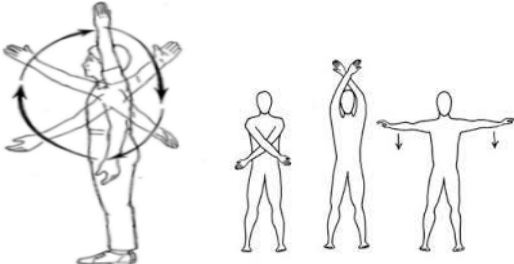
Time: 20–30 s

Sets: 3–5

*Where the competitive schedule is extremely demanding, as it is in tennis, most of the muscular endurance training can be done on court with specific racquet movements.

Sample Tennis Warm-up – Beginners

All-warmups before any match or hitting session should be at least 20 minutes. There are two important factors for successful warm-ups in tennis. Always warm-up from low to high-intensity to ensure you are not exceeding your warm-up during match-play or overusing muscles before they're ready. Use warm-ups that mimic tennis play, including the way you move your feet and arms.

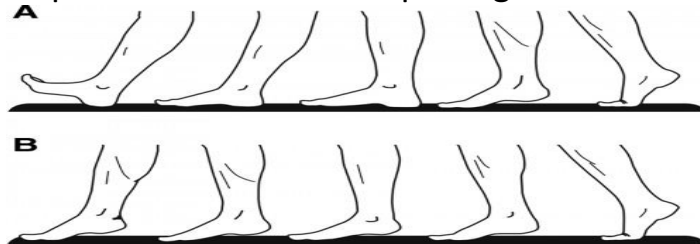
Before picking the racquet up:	After picking the racquet up:
<p>“Up and Backs” + “Side to Side” – Run to the net and backpedal to the baseline followed by side to side movement the width of the court – Gradually increase intensity of movement over the course of 5 minutes</p>	<p>“Short-Court Hitting” - You and your hitting partner should start inside the service line with <50% power, hitting back and forth for 2-3 minutes with the goal of keeping the ball in front of each other.</p>
<p>“Arm Circles” - Move arms in a circular motion at multiple planes, including horizontally back and forth (as if imitating a tennis shot) - Perform 2-3 minutes</p> 	<p>After 2-3 minutes, you and your hitting partner should begin taking a step back after every shot, though the goal remains to keep the ball in front of each other. As you and your partner continue to back up all the way to the baseline, the amount of power being used should gradually increase to >90% (Amount of power used in warm-ups should equal the maximal power used during the match/hitting session).</p>

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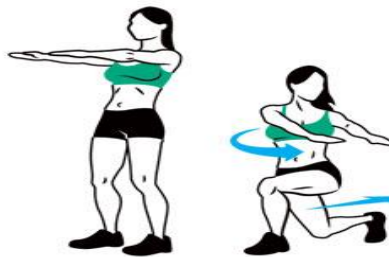
Sample Tennis Warm-up – Beginners (Continued)

While traditional stretching (static stretching) is effective in lengthening muscle fibers in both short and long-term periods of time, it also can significantly reduce muscle's natural ability to produce power for a period of time following traditional stretching. This is a significant problem in a sport like tennis which requires near maximal power generation over long periods of time. Stretches which involve dynamic movement, or non-static stretches, are effective in both lengthening muscle fibers and maintaining power generation.

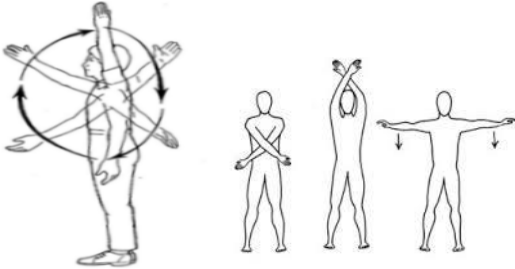

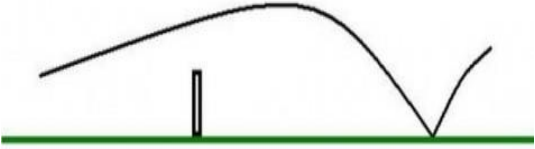



“Heel and Toe Walking” – Walk the width of the court on your heels and toes 2-3x each (Monitor the position of the knee during toe walking, as having the kneecap in front of the toes is putting excessive strain on the knee).



“Lunge with Core Rotation” – Go into a kneeling position with one leg forward (Knee bent at 90 degrees and weight on sole of foot) and one leg trailing the rest of the body (Knee bent <90 degrees with weight on toes). While in this position, perform a slow trunk rotation within the comfortable range of motion available in both directions. Perform 10x to each side on both legs.



Sample Tennis Warm-Up – Intermediate/Advanced

<p>Before picking the racquet up:</p> <p>“Up and Backs” + “Side to Side” – Run to the net and backpedal to the baseline followed by side to side movement the width of the court – Gradually increase intensity of movement over the course of 5 minutes</p>	<p>After picking the racquet up:</p> <p>Hit a Variety of Shots – Hit forehands + backhands in all directions and shot-types – Includes down-the-line and crosscourt shots, topspin and slice shots, various volley heights, and various serve types + angles – At least 15 minutes - Be mobile while hitting!</p>
<p>“Arm Circles” - Move arms in a circular motion at multiple planes, including horizontally back and forth (as if imitating a tennis shot) - Perform 2-3 minutes</p> 	 <p style="text-align: center;">Flat Tennis Stroke</p>  <p style="text-align: center;">Topspin Tennis Stroke</p>
<p>“Dynamic Stretches” – Perform a variety of exercises which also serve to stretch muscles – Lunges, heel and toe walking, core rotation – 10-15x Each</p>	
<p>A</p>  <p>B</p>  <p>“Heel and Toe walking”</p>	 <p>“Core Rotation with Lunge”</p>