

TENNIS

Tennis is a very fast moving game and some of the body movements needed require participants/athletes to have a larger range of motion in order to hit the tennis ball back to their opponent. Tennis is mainly focused on explosive powerful movements, moving at high intensities, rapid changes in direction and sudden deceleration or stopping. The muscles need to be well trained and prepared for such movements, which can be developed through exercise. If the muscles and joint structures are not prepared for such intensive movements, injuries may occur.



We know from research findings that a large number of patients with chronic diseases reduce their physical activity post-diagnosis and sustain a relatively inactive lifestyle, which is associated with further functional disability and deterioration of disease symptoms. Patients with different chronic diseases may have a limited range of motion, and as a result, they are potentially at a higher risk of injury if

involved in sports and/or physical activities with such movements like tennis. Therefore, it is important that tennis training for the diseased population in progressive, focusing in improving the range of motion, overall strength and fitness. In addition, increasing frequency should be the primary aim of training, before increases in intensity can be applied. Tennis has not been used in rehabilitation regimes for patients, so no research exists on this front. However, following the principles of training progressions and taking into account the patients functional abilities, a tennis coach/volunteer can tailor the training to suit any patient of any chronic disease. Tennis training should start from stretching and range of motion exercises which means better functional ability and fewer injuries.



Warm up (10minutes)

At low intensities, the warm up can include:

- Walking or brisk walking for 2-3 minutes x 2, with a 2 minutes light walking break
- Arm and wrist cycles with the racket
- Extended arm small circles at the shoulder level
- Trunk rotations with hands on the waist
- Jogging on the spot (based on the level of the patient)

Main Session (45minutes)

Flexibility / Stretching

Table 28 illustrates exercises that should be performed at all times by the patients at the start and at the end of every session:

Table 28: Flexibility Exercises Based on a Tennis Training Session for Patients with Chronic Disease.

Exercise	Intensity
Static Stretching Muscle Groups: Quadriceps, Hamstring, Calves, Shoulders, Back, Upper and Lower Chest, Upper and Lower Back	- 3 Sets per muscle group - Hold for 30 seconds - Making sure the stretch is done slowly and is as close to the full range of motion as possible (If it's painful relax the stretch)
Dynamic Stretching Muscle Groups: Ankle, Shoulder, Wrist and Leg rotations.	- 10 rotations - At a slow pace reaching almost full range of motion

Limit the range of motion for patients that have: a) upper body functional disabilities: bypass surgery, recent upper body surgery of the shoulder, elbow, breast surgery, inflammation and/or osteoarthritis of the shoulders, elbows, wrists, neck and b) lower body functional disabilities: previous/recent lower body surgery and/or inflammation/osteoarthritis of the torso, hips, knees, ankles

Cardiorespiratory Fitness

Tennis comprises of numerous bursts of activity over short distances. Unlike most sports, tennis does not require long distance running but instead numerous explosive maneuvers with the main energy system in use being the aerobic system. This is why a combination of aerobic and anaerobic training is essential for tennis players. Patients who are inactive when they first engage in any sport, should not engage in any form of games including tennis until their cardiorespiratory fitness, flexibility and strength are significantly improved. As such, normal cardiorespiratory training programmes should be applied for patients and should follow the same principles of a rehabilitation program. Interval and continuous training is therefore the training that should be followed but also the training that is mostly applied in tennis training. The normal progression of training (after 3 months of tennis training) could be repeated-sprint training which however, should not focus on running but brisk/fast walking. The coach/volunteer should keep in mind that frequency of training should be the first component of exercise training that needs to increase (i.e. from 2 times per week up to 3-5 times per week with 1 or 2 sessions of strength training).

Table 29 illustrates exercises that could be used for improving the cardiorespiratory fitness of patients with different chronic diseases.

Table 29: Aerobic Exercises based on a Tennis Training Session for Patients with Chronic Diseases

Exercise	Time/Reps	Progression	Frequency	Break
Jogging on the spot	3 min	5 min	3 times	1 min
Brisk Walking Shuttles	6-8 times	10-12 times	3-5 times	30 sec
Walking	10-15 min	20 min	1 time	5 min
Shuttle Brisk Walk and Hit Ball	2 min	Jogging	3.5 times	1 min
Practice Matches				

Comments

Jogging on the spot

Different aerobic exercises can be used to enhance aerobic fitness in tennis.

Brisk Walking Shuttles

Use different lines and distances within the court

Walking

-

Shuttle Brisk Walk and Hit Ball

It is important to direct the tennis ball at places when the patient will easily reach and will not overstretch

Practice Matches

These exercises should only be used after 3 months (i.e. after the patient is much better conditioned).*

Depending on fitness levels short games of 15-30 minutes or until slightly fatigued is efficient enough to stress the cardiovascular system at higher intensity.

* In patients that have extensive functional limitations and/or pain in flexibility and all other cardiorespiratory exercises, do not use practice game training.

TENNIS

Strength

Strength training is an important factor in sports, especially tennis. Tennis players need to regularly focus on strength training in order to perform the constant bursts required for the sport. Both amateurs and professionals need to focus on the aspect of gaining maximum strength but also muscular endurance as some tennis matches can last up to 3 hours, even more in some cases. The primary intention with patients who want to start and practice tennis is not the same, but the focus should be to build strength training in order to be able to perform at lower intensities when (later in their training) they may engage in practice matches. Tennis engages every muscle, moving at different speeds and angles, so strength training is essential and aims to train the body in order to avoid muscle imbalances and future injuries. For patients with different chronic diseases, strength training could be used once a week during the first month followed by at least 2 times per week from the second month onwards.



Table 30 highlights examples of strength training exercises that can be utilised for patients:

Table 30: Strength Exercises based on a Tennis Training Session for Patients with Chronic Diseases

Exercise	Time/Reps	Progression	Frequency	Break
Squats	8-10	15-20	2-3 times	30 sec
Squats with Medicine Ball	8-10	15-20	2-3 times	30 sec
Slight knee bend (minimal squat) and Jump	8-10	15-20	3 times	1 min
Lunges	8-10	15-20	3 times	30 sec
Pull-ups with rope assistance	10	20	3 times	1 min
Light Weight Bench Press or Knee Push-ups	8-10	15-20	3 times	1 min
Brisk Walking with Weight	10 meters	20 meters	5 times	30 sec

Comments

Squats

In patients with lower functional disabilities do not bend much and focus on technique*

Squats with Medicine Ball

In patients with lower functional disabilities do not bend much and focus on technique*

Slight knee bend (minimal squat) and Jump

*In patients with lower or upper functional disabilities** do not bend or raise arms much and focus on technique*

Lunges

In patients with lower functional disabilities do not bend much and focus on technique*

Pull-ups with rope assistance

*In patients with lower and or upper functional disabilities** do not bend much or extend arms much and focus on technique*

Light Weight Bench Press or Knee Push-ups

*Medicine ball or dumbbells can be used. In patients with upper functional disabilities** do not bend arms much and focus on technique*

* lower functional disabilities: inflammation/osteoarthritis of the knee, hip, recent lower body surgery that causes pain and prevents appropriate range of motion

* upper functional disabilities: inflammation/osteoarthritis of the shoulders, elbow, trunk, recent upper body surgery that causes pain and prevents appropriate range of motion

Cool Down (10 minutes)

Slow walking around the court. Rotate arms and wrists while walking and focus on controlled breathing.

General Comments

Due to the complexity and high-intensity of tennis, training for tennis games may seem quite difficult. So, it is reasonable for a coach/volunteer to be hesitant and not knowing where to start, when exercising a patient with a chronic disease. However, if the suggested exercises in this manual are performed at low intensities at the start and focus on improving flexibility, overall strength and fitness, then the patient may be able to exercise in a safe manner and also achieve significant benefits while performing a sport that he/she enjoys. The coach/volunteer should explain to the patient that at the start of the training, the focus will be to improve technique and flexibility, strength and fitness at low intensities while using tennis-related exercises and drills. Games and short tennis matches could be played in the later phases during the programme (after the 3rd month) and given that the patient is fit and without experiencing any pain when participating. Short matches of one game could be played, or if the patient feels fatigued after one rally, then the time between serves should be extended until the patient does not breathe heavily. A modified version of squash which comes under the banner of racquet sports is already in existence which is known as racquet ball which incorporates a softer ball making movement around the court less strenuous. Using a larger and softer ball in tennis may also be an option in the game phase of the programme as a progression for patients wanting to engage in an actual game of tennis.

