

# BASKETBALL

Basketball is a high-intensity activity that requires high levels of agility and involves a variety of movements, including running and jumping. There is a range of fitness components that contribute to successful basketball performance. Players require good running speed, strength and power, balance and agility, as well as a good level of aerobic and anaerobic fitness. Apart from the physical training which is one of the most important ingredients in training to achieve high performance, to be successful, an athlete needs sound technique.



All these above elements can be successfully adapted and utilised to develop an efficient exercise programme for patients with different diseases. A programme for this population group could start with low-intensity simple exercises that always have basketball-specific movements and drills and build up to movements which are similar to the actual sport. Remember that we should not aim to influence patients with chronic diseases to engage competitively but to use the sport as a form of physical activity to help patient reach the recommended levels of physical activity.

Similar to walking football, basketball could have a walking game element where instead of the high intensity traits of the sport, the intensity can be lowered to walking rather than running, still however, incorporating the main techniques of the sport. To achieve this level, it is necessary to first build up cardiorespiratory fitness strength and flexibility. Moreover, this concept can also be utilised with lower hoops (to avoid overextension of arms/shoulders/trunk), which are commercially available. This is however currently

a concept that is suggested herein (there is no official walking basketball game with specific rules similar to walking football) and has not been tested, so the training suggested in this manual is based on elements of normal basketball training.

## Warm up (10minutes)

At low intensities, the warm up can include:

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

## Main Session (45minutes)

### Flexibility

Flexibility is an important part of basketball training and is a very important part of training for patients with chronic diseases that sometimes experience limited range of movement from various different disease manifestations or treatment (e.g. surgery). The stretches highlighted in table 5, can be utilized exactly as described or for the coach/volunteer to choose as appropriate. It is important to note that all stretching exercises should be performed up to the level that the patient does not feel pain or discomfort, as stretching at high ranges of motion may exacerbate disease symptoms and pain, causing discomfort and thus, result in a lack of willingness for future participation.

**Table 5: Flexibility Exercises based on a Basketball Training Session for Patients with Chronic Diseases**

Exercise	Time/Reps	Frequency	Break
Arm Shoulder Overhead Stretch	30 sec	3 times	30 sec
Body Lateral Stretch	30 sec	3 times	30 sec
Triceps Behind the Head Stretch	30 sec	3 times	30 sec
Triceps Stretch One Arm Across Body	30 sec	3 times	30 sec
Simple Quadriceps and Hamstring Stretch	30 sec each	3 times	30 sec

### Comments

Slow with attention to precision and extension of arms to a point that is not hurting

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

The coach/volunteer could inform the patients that these type of exercises are at intensities beneficial for them and what they should feel when exercising is breathing slightly heavier than normal, without however any of the exercises provoking a heavy feeling in the chest.

Basketball has an intermittent nature and it is well known that intermittent / interval exercises improve our fitness levels considerably. Despite the intermittent nature of these exercises, the intention at the start of a basketball training programme should be to increase participation to the recommended physical activity levels (150 minutes per week) using low intensities, before more intense exercises/drills are applied.

Once the below exercises are able to be performed without any issues, more complicated basketball-specific drills can be incorporated within the program. Instructors should guide patients to focus on technique first to avoid injury from high intensity uncontrolled exercises.

The aerobic fitness exercises highlighted in table 6 can be used in the following or in a different order:

**Table 6: Aerobic Exercises based on a Basketball Training Session for Patients with Chronic Diseases**

Exercise	Time/Reps	Progression	Frequency	Break
Easy Offensive Basketball Drill 1	5-10 times	Put time limit	3-5 times	30 sec
Easy Offensive Basketball Drill 2	5-10 times	Put time limit	3-5 times	30 sec
Walking Shoot and Retreat	5-10 times	Jogging	3-5 times	30 sec
Walking Dribble in-and-out of cones	3 times	Jogging	5 times	30 sec
Walking Defense	5 times	Jogging		
Jogging on the spot / cycling / cross-trainer	3 min	5 min	3 times	1min

### Comments

#### Easy Offensive Basketball Drill 1

*Easy lay-up from different spots; if you miss repeat 1 time. For patients with limited upper body functional ability\* first improve range of motion so that hands can be raised for lay-up*

#### Easy Offensive Basketball Drill 2

*Outside shot from different spots; get a pass from a partner but if you miss repeat 1 time. For patients with limited upper body functional ability\* first improve range of motion so that hands can be raised for the shot*

#### Walking Shoot and Retreat

*Walking based retreat after a shot from different spots. For patients with limited upper body functional ability\* first improve range of motion so that hands can be raised for the shot*

#### Walking Dribble in-and-out of cones

*Walking based dribble in and out of cones*

#### Walking Defense

*Two players stand at equal distance from a ball. When the whistle blows, the defensive player must use proper defensive stance to box out the other player to keep him from getting to the ball. Walking based activity, focus on technique*

#### Jogging on the spot / cycling / cross-trainer

*Different aerobic exercises can be used to enhance aerobic fitness in basketball.*

\* limited upper body functional ability: inflammation/osteoarthritis of the shoulders, elbows, recent upper body surgery that causes pain and prevents appropriate range of motion

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## Strength

Explosive strength is a very important part of basketball training as this is the predominant type of strength required for the intermittent nature of this sport. However, there is no need to exercise explosive strength in patients with chronic diseases. For these populations, it is important to improve overall strength as this has a significant and beneficial impact in their lives. As such, basketball-specific strength training can focus on basketball-specific exercises that have to be performed using controlled movement, focusing at the start on technique rather than intensity. Intensity can be built up once the appropriate technique has been achieved. The coach/volunteer could incorporate strength exercises once a week at the start of the programme for the first 1 or 2 months (this will be based on the patients abilities/willingness/progression), followed by 2 times per week.



A different combination of exercises can be utilized to improve overall strength in patients with different chronic diseases as highlighted in table 7:

**Table 7: Flexibility Exercises based on a Basketball Training Session for Patients with Chronic Diseases**

Exercise	Time/Reps	Progression	Frequency	Break
Defensive step slides	30 sec	1 min	3 times	30 sec
Squat with ball	8-10	15-20	3 times	30 sec
Squat with ball and lift ball	8-10	15-20	3 times	1 min
Static lunge with ball	8-10	15-20	3 times	30 sec
Chest passes with ball	1 min	Medicine ball	3 times	30 sec
Squat with ball and shot	8-10	15-20	3 times	1 min
Ball rises	12	20	3 times	30 sec

### Comments

#### Defensive step slides

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

#### Squat with ball

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

#### Squat with ball and lift ball

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

#### Static lunge with ball

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

#### Chest passes with ball

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

#### Squat with ball and shot

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

#### Ball rises

*In patients with upper functional disabilities\*\* do not bend or raise 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**

The above exercises could be performed from all patient groups, however, when patients experience pain before getting involved in basketball training in any part of the body, we should either perform the exercise with a focus on technique, or avoid an exercise that causes pain until the patient has been given relevant advice by the consulting doctor and is cleared to perform this exercise.

Avoid competitive matches during training as it may increase the risk of injury; instead the coach/volunteer could focus the training on performing the correct movements. Also, patients with upper body surgery (e.g. breast cancer surgery and/or heart surgery) or upper body functional limitations (extensive and painful inflammation or severe painful osteoarthritis of the elbow, wrist, shoulder, trunk) should go through standard care first and managed well by medication before participating in basketball training.

A concept that can be utilised for rehabilitating purposes in patients with chronic disease for basketball training may be walking basketball with lower hoops (to avoid overextension of arms and therefore cause pain) and/or water basketball. These are concepts that can be developed further and tested in the future by research studies in patients with chronic diseases willing to get involved in basketball training. These concepts can also be utilised by coaches/volunteers to develop the game using their own rules in their club, so that they can make patients active in a safe manner. However, the suggested exercises above could be utilised to train patients using basketball-specific exercises but these should be used slowly (low-intensity) at the start of the training programme (first 1-2 months) and then build up (3rd month onwards)

