

BOXING

Boxing can have both physical and psychological benefits for patients. These include the enhancement of cardiovascular health, better coordination, improved total-body strength, increased stamina, release of aggression, decreased stress and improved body composition (reduced fat).



England Boxing (the national governing body for boxing), through its Equity and Ethics Commission, has been working on pilot boxing programmes for people with disabilities though they are still at an early stage of development. An amateur boxing class usually lasts for 1 ½ hours, and involves high-intensity training which may be difficult to follow for people with chronic diseases or if the participant has never been trained or done sports before. So, it is recommended that the duration and the frequency of the training should be determined by the functional level of the participant and his/her fitness target, focusing first on lower intensity activities. So, for patients with chronic diseases who are at beginner's level, the coach/volunteer

may want to consider engaging the patient in boxing training, 2-3 times per week (rather than once a week and higher intensity exercises) with a potential breakdown of activities in different days (2 times aerobic training and on a different day strength training). Although the intention is to exercise patients 3 times a week at moderate intensity to achieve the recommended guidelines, we acknowledge that this may be sometimes hard for the patient. In these cases, less training (1-2 times / week) is better than no training at all.

All the following exercises are relevant to all chronic diseases, unless stated otherwise.

Warm up (10minutes)

At low intensities, the warm up can include:

- Brisk walking for 2-3 minutes x 2, with a 2 minutes light walking break
- Free direct punches (shadow punching) at low intensity without resistance; make sure that you correct the technique of the patient and you stress that this is a low intensity warm up focusing on technique and breathing
- Arm and wrist cycles
- Trunk rotations with hands on the waist
- Straight leg march (patients with chronic inflammatory conditions and/or arthritis may not be able to do that)
- Jogging on the spot (based on the level of the patient)

Main Session (45minutes)

Flexibility

Flexibility is a physical trait which may be, sometimes, overlooked in boxing, although, it is as important as every other part of training. That is because flexibility directly affects our range of motion. At the start of a training session, it is necessary to perform a series of stretches to warm up the muscles and maintain and improve flexibility. This is very relevant to patients with chronic diseases as improved flexibility improves functional ability. The muscles which are more frequently used for the sport should be thoroughly stretched. You may want to consider performing these exercises at both the start and at the end of the training session. The following flexibility fitness exercises, as shown in Table 8, can be used in the following or in a different order:

Table 8: Flexibility Exercises based on a Basketball Training Session for Patients with Chronic Diseases

Exercise	Time/Reps	Frequency	Break	Comments
Neck Tilt	10 reps	2 times	30 sec	Slow avoiding overextension and movements that may cause pain
Neck Turn	10 reps	2 times	30 sec	
Shoulder Stretch	30 sec	2 times	30 sec	
Triceps Stretch	30 sec	2 times	30 sec	
Quadriceps Stretch	30 sec	2 times	30 sec	
Hamstring Stretch	30 sec	2 times	30 sec	
Chest Stretch	30 sec	2 times	30 sec	
Back Stretch	30 sec	2 times	30 sec	
Calf Stretch	30 sec	2 times	30 sec	
Groin Stretch	30 sec	2 times	30 sec	

Cardiorespiratory Fitness

You should inform the patient 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, the exercises making them feel heavy in the chest.

Boxing has an intermittent nature in its training and it is well known that intermittent / interval exercises improve our fitness very much. The following aerobic fitness exercises, as highlighted in Table 9, can be used in the following or in a different order:



Table 9: Aerobic Exercises based on a Boxing Training Session for Patients with Chronic Diseases

Exercise	Time/Reps	Progression	Frequency	Break
Skipping rope	30 sec	up to 1 min	4-6 times	15 sec
Shadow Boxing without gloves	30 sec	up to 1 min with gloves	4-6 times	15 sec
Basic Footwork	1 min	Increase speed	10 times	30 sec
Basic Punching Combinations without gloves	30 sec	Increase speed with gloves	10 times	15 sec
Basic Punching Combinations with focus pads	30 sec	Increase speed with gloves	10 times	15 sec

Comments

Skipping rope

For patients with knee problems just rotate the rope and walk over it*

Shadow Boxing without gloves

*For patients with severe upper body functional disabilities**, avoid until problem is resolved*

Basic Footwork

Low intensity with a focus on technique

Basic Punching Combinations without gloves

Start with a focus on technique rather than intensity for people with upper body musculoskeletal difficulties

Basic Punching Combinations with focus pads

Start with a focus on technique rather than intensity for people with upper body musculoskeletal difficulties

*knee problems: osteoarthritis, inflammation, knee replacement, recent joint surgery

**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

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Strength

Strength is also important for this sport and can be categorised in four groups: maximal strength, endurance strength, speed strength and explosive strength. However, boxing strength training for patients has to be focused on improving maximal strength and strength endurance, as this has the potential to significantly improve their functional ability (and therefore the ability to perform daily activities) and quality of life. The suggested strength exercises can be used at the start of the programme once a week with a progression of 2 times per week, as per relevant guidelines.



The following exercises can be used for patients with chronic diseases, as indicated in Table 10:

Table 10: Strength Exercises based on a Boxing Training Session for Patients with Chronic Diseases

Exercise	Time/Reps	Progression	Frequency	Break
Push-of-war Partner Drill	30 sec	1 min	3 times	30 sec
Squats	10-20 reps	Add light resistance	3 times	30 sec
Calf Raises	10-20 reps	Add light resistance	3 times	30 sec
Inside/Outside Slip boxing	10-20 reps		3 times	30 sec
Push-ups on knees	8-12 reps	15-20	3 times	30 sec
Pad Work: The 'Y' Drill – non contact	1 min		3 times	30-60 sec

Comments

Push-of-war Partner Drill

Static light push without force to move the partner. For patients with upper musculoskeletal issues avoid until functional ability allows performing this exercise*

Squats

Focus on technique and do not exceed 90o of knee angle during squat

Calf Raises

-

Inside/Outside Slip boxing

-

Push-ups on knees

Focus on keeping the body straight. For patients with upper musculoskeletal issues avoid until functional ability allows performing this exercise*

Pad Work: The 'Y' Drill – non contact

Focus on technique and avoid overextension of limbs to avoid injury

*musculoskeletal issues: inflammation or osteoarthritis in upper body parts such as elbow, shoulder or wrist, upper body recent surgery such as heart bypass

Cool Down (10 minutes)

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

General Comments

Boxing has not been used in the literature for rehabilitating patients with chronic diseases. However, the suggested boxing training is based on exercises and progression that is used in a similar manner from other sports.

The above exercises could be performed for all patient groups, however, when patients experience pain before getting involved in boxing training in any part of the body, they should either perform the exercise with a focus on technique, or avoid an exercise that causes pain until the patient feels no pain or discomfort and is cleared to perform this exercise from his/her consulting doctor. You can prescribe any of the above exercises for any patient provided that they are performed at low intensities with a focus on technique and make sure that they do not cause any pain; this is very important to take into account.

Once the patient starts at low intensities and performs movements that do not cause pain, the coach/volunteer should focus on increasing frequency of training (i.e. more times per week) before increasing intensity. So, the patient is able to exercise 3-5 times a week (using a minimum combination of aerobic 2 times a week and strength at least once a week), he/she will be able to progress with higher intensities. The coach/volunteer should also make sure that the patients avoid games during training as these may cause injury; instead focus on performing the movements correctly; doing so the muscle coordination improves and only then patients can build up their strength.

Generally, patients should avoid contact in boxing and concentrate on the movement and fitness drills that surround this sport eliminating any potential injuries posed by sparring or similar drills.

