

KARATE

Karate has become one of the most popular martial arts in recent years and has spread all over the world, with local clubs competing in national and world championships. Due to the nature of the sport, people of all ages are able to participate whether they have chronic diseases or not. There are two main categories; Kumite (sparring) and Kata. Individuals during training are taught a number of techniques which are formed in to combinations to mimic a fighting situation called Kata; each style has their own variations which mean that training for Karate can be tailored to the patients' needs.



Due to the nature of this sport, during training the focus can be on correct techniques, practising and learning new/old techniques and Katas. Similarly to Tai Chi, which has been used substantially in research to improve functional ability (mainly cancer research), patients can engage in Karate training in a similar manner. Therefore, training can be of different intensities that can be adapted to suit each individual's needs. Some classes are lower intensity because

they focus more on developing technique. This should be primarily the focus of training in patients with chronic diseases. However, in Karate, other classes can develop Kumite techniques and cardiovascular fitness, which is performed at higher intensities.

All exercises and techniques can be modified for those with chronic disease, for example, running can be reduced to jogging or fast walking and body weight exercises like press ups can be done on knees instead of the feet. Moreover, karate-specific movements can be based on slow movement rather than intensity with a focus on achieving good range of motion without any pain.

Warm up (10minutes)

At low intensities, the warm up can include:

- a) Walking or brisk walking around the dojo 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

Main Session (45minutes)

Flexibility

Every training session traditionally starts with flexibility training which can also be performed at the end for recovery. Everyone can learn to stretch regardless of age or flexibility, mobility and co-ordination. Flexibility exercises help to increase the lubrication of synovial fluid in the joints to help improve range of motion and reduce stiffness. Flexibility training can be used to improve patients' overall well-being while offering multiple benefits mainly relevant to improving the range of motion and thus, functional ability. Importantly, flexibility training should be used to reduce the risk of injury that can occur during higher intensity Karate training.



Table 22 illustrates flexibility exercises that can be performed all or in part, from every patient having any chronic disease:

Table 22: Flexibility Exercises based on a Karate Training Session for Patients with Chronic Diseases

Exercise	Time/Reps	Frequency	Break
Neck Tilt	10 reps	2 times	30 sec
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

Comments

For all exercises slowly avoiding overextension and movements that may cause pain



Cardiorespiratory Fitness

Interval training forms an integral part of Karate training, and is a proven safe method of adapting and improving patients (with different chronic diseases) fitness levels. The exercises should be performed at the persons own ability and their own pace. Therefore, these can be beneficial to many participants with chronic conditions as it helps to strengthen the heart and the lungs, reduce blood pressure allowing the heart to work more efficiently during exercise and daily activities and increase pain tolerance. The coach/volunteer should keep in mind that the target of the training should be to progressively exercise patients to recommended levels for physical activity (150 minutes per week). This can be achieved by exercising 2 times at the start of the programme for a month, progressing to 3 times during the second month and more frequently thereafter. Table 23 illustrates aerobic exercises based on Karate sessions for patients with chronic conditions.

Table 23: Aerobic Exercises based on a Karate Training Session for Patients with Chronic Diseases

Exercise	Time/Reps	Progression	Distance/frequency	Rest
Basic strikes and blocks	30sec per set	1min per set	10 repetitions 2 sets of each	30sec
Basic stances	1min per se	Move forward, back-wards and sideways	10 meters, 10 reps 2 sets	1min
Kata practise	5min per kata	Increase intensity	2 times, 10 katas	1min

* 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

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Strength

It is important to incorporate strength training exercises to improve/maintain muscular strength in patients with chronic conditions as participating in a resistance training programme results in increased functional ability, pain tolerance, improvements in bone health, and ultimately leads to the ability to perform daily activities more efficiently. This is very beneficial to all patients suffering from chronic diseases. The suggested exercises are part of Karate training sessions. The coach/volunteer can use any of these exercises at low intensities at the start of the training, increasing the intensity based on how the patient progresses and feels.



Table 24 highlights exercises that can be performed all or in part, from every patient having any chronic disease:

Table 24: Strength Exercises based on a Karate Training Session for Patients with Chronic Diseases

Exercise	Time/Reps	Progression	Frequency	Break
Squats	8-10 reps	15-20 reps	3times	30 sec
Static lunges				
Knee Push-ups OR Push-ups on an elevated platform	8-10 reps	15-20 reps	3times	30 sec
Holding multiple stances	8-10 reps	Move forward, backwards and sideways	2 sets	30 sec
Sit ups	8-10 reps	15-20 reps	3 times	30 sec
Shoulder Press with Elastic Band	8-10 reps	15-20 reps	3 times	30 sec
Standing Press-ups with Elastic Band	8-10 reps	15-20 reps	3 times	30 sec

Comments

Squats

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

Knee Push-ups OR Push-ups on an elevated platform

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

Holding multiple stances

For people with joint problems avoid twisting motions that cause even the slightest pain*

Sit ups

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

Shoulder Press with Elastic Band

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

Standing Press-ups with Elastic Band

In patients with upper functional disabilities do not bend 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)

- a) Walk around the dojo, while rotating shoulders and then hips.
- b) Stretch off the main muscles used during the class

General Comments

Karate is a sport which can be enjoyed in a group setting by anyone including patients with chronic diseases. It has many similarities with Tai Chi, a mode of exercise that is mainly based on range of motion exercises and has been utilised significantly in the literature to improve functional ability in many different patient groups including patients with chronic inflammatory diseases and cancer, as well as part of a fall prevention intervention in older adults. During Karate training, it is important that each patient exercises at their own pace, focusing mainly on technique and at intensities and range of motions that do not cause any pain. Eventually patients that exercise and/or increase physical activity levels improve significantly in many aspects of their health, so progressing in an informed manner (taking into consideration patients' needs and functional ability and improvement) is necessary.

