# BMX

The sport of BMX is a type of off-road bicycle racing derived from the sport of moto-cross. A BMX track is a purpose built off-road single lap track with a series of ramps and jumps. BMX racing is facilitated by a number of regional and international sanctioning bodies. They provide rules skill-level classifications among the racers, and maintain some kind of points-accumulation system over the racing season. The sport is very family oriented and largely participant-driven, with riders ranging in age from 2 to 70 years, and over. Professional ranks exist for both men and women, where the age ranges from 19 to 40 years. With reference to the patient population, BMX can be physically and mentally demanding, similar to many other competitive sports, and of high-intensity which requires developed techniques and skills which however, can be accordingly modified for patients with chronic diseases. A typical BMX session may last for up to 1.5 hours. At beginners level, the participant should consider training 2 times a week for 45-60minute sessions. All the following exercises are relevant to all diseases, unless stated otherwise.

## Warm up (10minutes)

At low intensities, the warm up can include:

a) Brisk walking for 2-3 minutes x 2, with a 2 minutes light walking break

b) Jog x2 minutes intervals using a shuttle system

c) Side steps 2 minutes intervals using a shuttle system

d) Core stability exercise using sit up and press ups

e) Straight leg march (patients with chronic inflammatory conditions and/or arthritis may not be able to do that)

f) Jogging on the spot (based on the level of the patient)

g) Static holds in sit up and press up position using core stability (patients with lower back problems may not be able to undertake this exercise)

## Main Session (45minutes)

**Flexibility**

Flexibility is an essential element of BMX training particularly in the lower torso as the impact of the sport may imply excess stress on lower extremities. As previously mentioned, flexibility directly affects our range of motion, therefore provoking injury. Immediately after a training session, it is necessary to perform a series of stretches to 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 should be thoroughly stretched.
Table 11 highlights flexibility exercises based on BMX training sessions for patients with chronic conditions.

**Table 11: Flexibility Exercises based on a BMX Training Session for Patients with Chronic Diseases**

| Exercise | Time/Reps | Frequency | Break |
|---|---|---|---|
| Shoulder stretch using cycle handle bars | 1 min | 2 times | 30 sec |
| Cross chest shoulder stretch Shoulder Stretch | 1 min | 2 times | 30 sec |
| Quadriceps stretch | 1 min | 2 times | 30 sec |
| Calf stretch | 1 min | 2 times | 30 sec |
| Neck rotations | 1 min | 2 times | 30 sec |
| Hamstring stretch | 1 min per muscle | 2 times per muscle | 30 sec |

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

## Cardiorespiratory Fitness

The coach/volunteer can inform the patient that these types 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 casuing a heavy chest.

BMX is an unorthodox sport which has only recently (within the past decade) become an Olympic discipline. BMX also has an intermittent nature and as previously stated, it is well known that intermittent/interval training considerably improves fitness compared to more continuous forms of exercising. Individuals with chronic diseases should first enter a 12 week preparation phase. Depending on individual progression rates, the main race track should be introduced as part of the programme towards the end of the 1st phase and a simplified track which is used for beginners with a flatter surface should be utilised. As an introduction to the program, patients should engage in a once a week adapted spin class session for the first 4 weeks of the program. This will build aerobic muscular endurance and create transferable benefits to the track based sessions.
The following modified spin class session as highlighted in table 12 can be adopted within the 1st four weeks of the programme.

**Table 12: Modified Spin Class Session for BMX training for Patients with Chronic Diseases**

| Activity | Duration | Intensit/Speed | Rest Interval |
|---|---|---|---|
| Slow Cycle | 3 minutes | Low gear seated rotations | None |
| Light Cycle | 2 minutes | 1st gear light intensity | 1 minute |
| Light Cycle | 2 minutes | 1st gear light intensity | 1 minute |
| Light Cycle | 2 minutes | 1st gear light intensity | 1 minute |
| Medium Cycle | 1 minute | 2nd Gear | 2 minutes |
| Medium Cycle | 1 minute | 2nd Gear | 2 minutes |
| Medium Cycle standing position | 30 secs | 2nd Gear | 2 minutes |
| Medium Cycle standing position | 30 secs | 2nd Gear | 2 minutes |
| Medium Cycle standing position | 30 secs | 2nd Gear | 2 minutes |
| Medium Cycle standing position | 30 secs | 2nd Gear | 2 minutes |
| Medium Cycle standing position | 30 secs | 2nd Gear | 2 minutes |
| Medium Cycle standing position | 1 minute | 2nd Gear | 2 minutes |
| Medium Cycle standing position | 1 minute | 3rd Gear | 2 minutes |
| Medium Cycle standing position | 1 minute | 3rd Gear | 2 minutes |

Special precaution for patients with knee, lower back injuries or inflamed or aggravated joints. The following aerobics exercise programme illustrated in table 13 can be adopted as a second session during weeks 1-4 and post this period.

**Table 13: Aerobic Exercises based on a BMX Training Session for Patients with Chronic Diseases**

| Exercise | Time | Progression | Frequency | Break |
|---|---|---|---|---|
| Seated cycle | 2mins | up to 1 min | 4-6 times | 15 sec |
| Race line practice – around the track with cones and chalk lines positioned around track simplifying the course | 2mins | Reducing time by 30 secs | 4-6 times | 1 min |
| Starter track circuits | 1 min | Increase speed | 10 times | 30 sec |
| Gate practice – working on the start technique from the down ramp | 30 sec | Increase speed with gloves | 10 times | 15 sec |
| Finishing techniques | 30 sec | Increase speed with gloves | 10 times | 15 sec |

**Comments**
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# BMX

## Strength

Core and lower limb strength are important factors for this sport and can be categorised in four groups: maximal strength, endurance strength, speed strength and explosive strength. However, BMX strength training for patients has to be focused on improving maximal strength and strength endurance, as this significantly improves their functional ability (and therefore the ability to perform daily activities) and increase the quality of life. Table 14 highlights strength exercises for a BMX session for patients with chronic conditions.

## Cool Down (10 minutes)

Patients should be de mounted their bikes and remove helmets and walk around the starter tracks rotating the arms and concentrating on controlled breathing.

## General Comments

All exercises and sequences described in this section can be used for all patient groups unless participants experience excessive discomfort or an increase in any of the symptoms associated with to their condition. If any of the described exercises have this effect, they should be avoided and the focus should be applied to strict technique. Any excessive pain or adverse side effects should be referred to the consulting doctor.

Using BMX as a rehabilitative vehicle for patients with chronic diseases, can have its advantages in terms of variety of activities, as well as potentiality increase a patient's confidence and social well-being which are important contributing factors to sustaining activity. BMX has a tendency to increase levels of adrenaline and serotonin as the thrill of riding the course is both physically and mentally demanding. In the diseased population as a manual, we do not advice patients to become BMX racers and enter the competitive side of the sport, although this is something that particular individuals might want to strive to. As an exercise programme, patients should use the modified race track and build up the confidence to ride the main course at the latter stages of the programme. Spin classes mimic a lot of the techniques in BMX racing such as the pump technique, which is a press up on the handles and standing riding. Spinning should be used for the patients' initial 4 week introduction phase to allow their bodies to acclimatise with the technique.

*****Comments on Table 13: Aerobic Exercises based on BMX Training Session for Patients with Chronic Diseases**

**Seated cycle**
*For patients with lower back issues keep shoulder back with a straight spine*

**Race line practice – around the track with cones and chalk lines positioned around track simplifying the course**
*For patients with chest problems**, avoid until problem is resolved*

**Starter track circuits**
*Concentrating on balance and ride technique with a special emphasis on body positioning. All patients groups should terminate tis exercise if they feel any excessive discomfort*

**Gate practice – working on the start technique from the down ramp**
*Start with a focus on technique rather than intensity for people with upper body musculoskeletal difficulties*

**Finishing techniques**
*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
**chest problem: bypass surgery, recent upper body surgery

**Table 14: Strength Exercises based on a BMX Training Session for Patients with Chronic Diseases**

| Exercise | Time/Reps | Progression | Frequency | Break |
|---|---|---|---|---|
| Body Positioning and posture 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 |
| Abductor/adductor | 10-20 reps | - | 3 times | 30 sec |
| Push-ups on bike handles | 8-12 reps | 15-20 reps | 3 times | 30 sec |
| Lunges | 1 min | - | 3 times | 30-60 sec |
| Modified manualing (Lifting bike handles) | 8-12 reps | 15-20 reps | 3 times | 30-60 sec |

**Comments**

**Body Positioning and posture 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**
-

**Abductor/adductor**
-

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

**Lunges**
*Focus on technique and avoid overextension of limbs to avoid injury*

**Modified manualing (Lifting bike handles)**
*Mimicking the maualing technique used to lift the front of the bike when going over a jump by raising the elbows and lifting the bike handles in a start position. The progression of this would be to do attempt this technique whilst riding.*

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