Royal Free London
NHS Foundation Trust

Cardiac rehabilitation physical activity guide

Name_____

Your training zone
(Beats per minute)

40% Max Heart Rate		-		70% Max Heart Rate

Information for patients

Welcome to the Royal Free Hospital's cardiac rehabilitation programme. The programme consists of an exercise and education course which is specifically tailored toward the patient.

This booklet is to be used as a guide alongside any advice from the cardiac rehabilitation team that's provided during the programme. As you progress through the programme, please follow the evidence-based, national cardiac rehabilitation guidelines detailed in this booklet and use the advice of the team to ensure you are exercising safely and effectively.

If you have any questions or need to contact the cardiac rehabilitation team, please use the contact details below:

Cardiac rehabilitation team
Royal Free Hospital,
10 West Ward concourse, Pond Street, London NW3 2QG
Email: rf.cardiacrehab@nhs.net
Telephone: 020 7830 2871

Introduction

For everyone who has suffered from a cardiac condition, restarting exercise is a difficult and daunting process. Please understand that despite your condition, it is possible to gradually rebuild your abilities and make gradual improvements.

During your cardiac rehabilitation programme, you will be guided on how to exercise safely and effectively, aiming to improve confidence, endurance, and your ability to manage everyday activities.

If you have any questions as you progress through the programme, please do not hesitate to ask one of the cardiac rehabilitation team, they will be more than happy to help. We hope that you enjoy your programme and hope that it equips you with the skills and knowledge needed to improve your health.

Cardiac rehabilitation programme

We have several programmes offered at the Royal Free hospital. These include face-to-face classes, virtual and home telephone programmes. It is important that you choose a programme that will suit your weekly routine as we want the activities to be as repeatable and consistent as possible.

If you are exercising from home or participating in additional or new physical activities during your rehabilitation phase, first seek advice from the cardiac rehabilitation team. If you would benefit from some further exercise resources such as exercise videos or paper exercise routines, please ask a member of the team.

Benefits of physical activity

To effectively recover from a cardiac event, it is necessary to take part in some form of physical activity. Exercising not only assists with your cardiac recovery but has many more health benefits both physical and psychological; some of these include:

Physical benefits

- Reduced risk of further **cardiac disease and stroke**
- Improved **cardiac function and circulation**
- Improved **cardiovascular fitness** (stamina)
- Increased **muscular strength**
- Improved functional movement and movement efficiency
- **Weight loss** / body weight control
- Better control of **blood fats and cholesterol**
- Better control of **blood pressure**
- Reduced risk of musculoskeletal injury and risk of falls
- Prevention of osteoporosis (stronger and firmer bones)
- Improved immune system
- Less backache / back pain
- Less joint pain and stiffness
- Increased energy
- Improved flexibility

Psychological benefits

- **Stress and anxiety** management
- Helps you to relax and sleep better
- Increased **self-esteem**
- Encourages a positive mental attitude and sense of wellbeing

Government guidelines recommend that every adult participates in at least 150 minutes of moderate physical activity each week. Moderate activity is any exercise that makes you feel slightly breathless (11 – 14 on the Borg Score).

Staying safe during physical activity

The information in this booklet follows national rehabilitation guidelines and details how patients can exercise safely and effectively at their own personal level. It should be used alongside any advice given by the cardiac rehabilitation team.

Immediately tell someone and do not begin or continue to exercise if you experience any of the following:

- Pains in the chest
- Resting breathlessness
- Any nausea
- Palpitations
- Feeling cold or clammy
- Excessive sweating
- Any dizziness or unusual weakness

Where possible, have a family member or friend nearby in case you need help during your exercise session.

For patients who use a GTN spray or tablets

If you have been prescribed a Glyceryl Tri-Nitrate (GTN) spray or tablets then please ensure you have it with you before exercise. If, at any point you need to use the GTN as prescribed, make sure you are seated to help to reduce any dizziness that might occur. If these symptoms aren't relieved rapidly then do not hesitate to seek medical advice.

If you have any chest pain, stop exercising immediately. If, after five minutes of rest the pain is still present and you have a GTN spray / tablets, take one spray / dose. If, after five minutes of using your GTN, the pain is still present, take another spray / dose.

If the pain does not improve with two doses you should call an ambulance and treat it as an emergency. If you do not have a GTN and your pain persists for ten minutes following rest, treat it as an emergency and call an ambulance.

If you feel unwell, please seek medical advice from your GP or NHS 111. In an emergency, always dial 999.

What to avoid when exercising:

- Exercising soon after a meal
- Exercising while feeling unwell
- Exercising in extreme temperatures
- Competing with others. Exercise at the correct level for you using your training zone as a guide
- Sustained overhead exercises
- Prone / supine exercises (exercising while laying down)
- Bracing / isometric exercises (no movement around the exercised joint such as holding a squat in the lowest position)
- Holding your breath during exercise

What's normal during physical activity

- Controlled and healthy breathlessness (able to talk while exercising)

- Slight sweat and skin glow
- Muscle ache – your muscles undergo physical changes as they adapt to exercise, you may experience some muscle soreness in the days after your workout, this is normal and will occur less the more you exercise
- Mental positivity - feeling pleasantly tired and proud that you've worked at a good intensity for the appropriate amount of time

Setting your programme goals

Before you begin your programme, you should set **specific, measurable, achievable, relevant, time-based (SMART)** goals for the duration of your rehabilitation and onwards. It is important to set both short-term and long-term goals.

These goals will help you to measure your progress and stay focused and motivated throughout your eight-week rehabilitation programme. Use the section in your Physical Activity booklet to set your goals.

Measuring your exercise intensity

During the eight-week course we use two methods to measure and track exercise intensity: pulse rate (beats per minute) and the 6-20 Borg score (see inside back cover).

Your pulse rate is the number of times your heart beats per minute (BPM). As you exercise, this increases to help supply oxygen rich blood to the working muscles.

To **measure** your pulse rate, we can take a 15 second pulse check on either the inside of the wrist or side of the neck. This is then multiplied by four to get your BPM. When resting, this figure will be typically between 50 – 100 BPM.

If you have a smart watch or fitness band, these often have features which allow for heart rate tracking and may be useful to monitor your exercise intensity levels.

Pulse oximeters may also be used to measure your pulse rate.

If your pulse is abnormally low or high after ten minutes of rest, then please do not exercise and report this to your GP.

Training zone

Your **training zone** (see the front cover of the booklet) is calculated based on your condition, age, resting heart rate and medication. It represents the pulse rate you should aim for during the main exercise component of your sessions. While beginning cardiac rehabilitation, aim for a lower intensity so you can pace yourself for the entire session.

Then, once you have an idea of the demands for each session, you can aim for a higher, appropriate intensity. If you have one, you can use a smart watch or fitness tracker to monitor your heart rate and ensure you are working at the correct intensity.

To exercise your cardiovascular system, aim to exercise between 40% - 70% of your maximum heart rate as this is the intensity level in which you are most effectively training your cardiovascular system. You should aim to sustain these levels of healthy breathlessness for ten to 30 minutes depending on your condition.

The 6-20 Borg rating of perceived exertion (RPE) is a way to measure your body's exertion levels during exercise as outlined by the table on the next page:

Before exercise, you will be at resting levels **6 – 8** on the Borg scale where you are making no or extremely light physical effort.

When **warming up** your exertion levels will gradually increase from **8 up to 11** where you are making light physical effort.

The **main exercise session** will see you work at **11 to 14** on the Borg scale. This is where you are making much more physical

effort and you should try to achieve this while maintaining a good level of healthy breathlessness (able to talk).

For the **cool down** you should gradually lower your exertion levels from **11 down to 8.**

After the cool-down you should return to resting levels **6 – 8.**

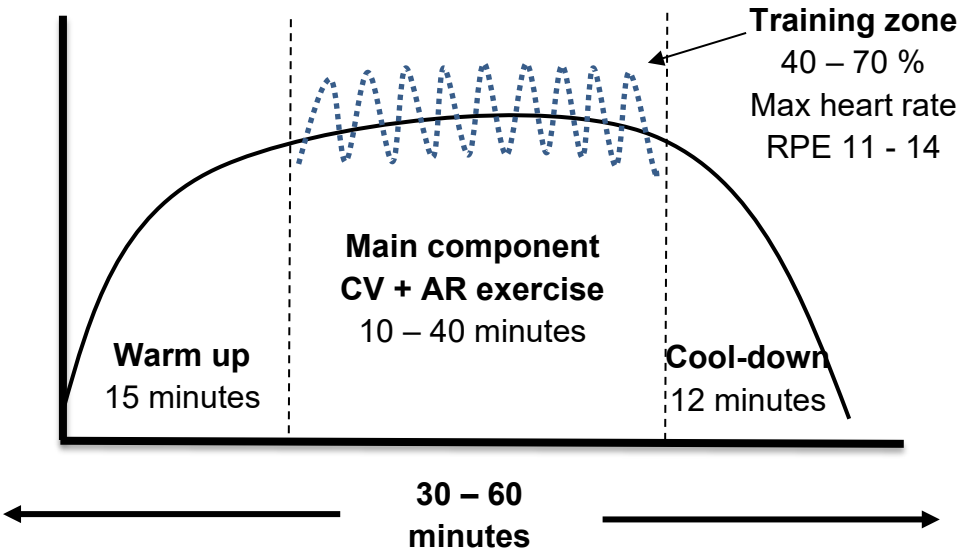

Figure 1: effective exercise session following cardiac rehabilitation guidelines

Safe and effective exercise session structure

Figure 1 shows the structure of an effective cardiac rehabilitation exercise session as explained to you during the presentation at the beginning of the programme. During the main session, intensity goes up during the cardiovascular exercise (**CV**) and comes back down during active recovery (**AR**). Never going above 70% of maximum heart rate or 14 on the Borg score.

Before you warm-up, check your exertion levels. Your pulse should be at a normal resting level for you. Normally this is

between **50 – 100 BPM.** Another way to check is via the **Borg score**. You should be at levels **6 - 8 (very light physical effort)** before exercise. Factors that can affect this may be stress, medication, food or drink, time, and recent activity. Have some water ready to drink regularly throughout your session.

Warm-up

Borg score: Build up to 11
Heart rate: Build up to your training zone (see front cover)

The warm-up should include around **15 minutes** of pulse raising exercises and muscular stretches held for six to 10 seconds. It should gradually develop in intensity, starting with smaller movements and building up to incorporate larger, more physically demanding movements. With any physical activity, it is most important to complete the **gradual warm up** to ensure your body adapts and is suitably prepared for the activity

Main exercise component

Borg score: 11 – 14
Heart rate: Training zone (see front cover)
Talk test: Should be breathless but able to maintain a conversation / sing while exercising

The main part of the exercise should consist of a multi-station circuit of various cardiovascular exercises and active recovery stations. You should exercise to achieve breathlessness but be able to maintain a conversation during the cardiovascular stations and recover your breath during the active recovery stations.

You should work at an intensity that you can sustain for the full duration of your planned session. Slow down or perform smaller movements or reduce the weight of the equipment if you find you are 15 or more on the Borg scale.

Cool down

Borg score: Gently return to resting levels (6 – 9)
Heart rate: 50 – 110 BPM (within 10 beats of pre-exercise resting heart rate)

The cool down should be at least **10 minutes in length** and gradually decrease in intensity until you feel you are back to resting levels. It should also incorporate the same stretches as the warm-up, but this time hold the **stretches for 10 – 15 seconds** to help develop flexibility.

The gradual cool down should be completed to allow your body an appropriate amount of time to bring the heart rate back to resting levels. **It is very important to make sure you have reached resting exertion levels (see the Borg scale) before you finish your cool down.**

After exercising you should expect to feel warm and as though you have exerted yourself. Ensure you drink water to replenish any of the fluids lost during exercise. **It is recommended to allow a full 24 hours before undertaking any further moderately intense exercise sessions to ensure your body has enough time to recover**.

If you have not exercised for some time, your muscles may ache **in the days after your exercise sessions.** This is normal as your muscles adapt and recover from the exercise routine. Try to **stretch often** and **eat nutritionally rich meals** to help improve muscle recovery.

Good nutrition is as important as exercise, so please ask a member of the cardiac rehabilitation team for advice if you would like further information.

Please record your exercise and activities in the personal activity diary we have provided with this leaflet.

Following Cardiac Rehabilitation

The programme aims to inform and instil healthy lifestyle changes for our patients. If you are coming to the end of your programme and you feel that you may need further support, please speak with a member of the team and we will endeavour to provide further advise and support to help you.

There are also several ongoing exercise services in the local area, please ask a member of the team if you wish to be referred to these services or find a service local to your area using the cardiac rehabilitation phase 4 programme and certification register: www.cardiac-rehabilitation.net/phase-4.htm

Recommended online resources

Below are some useful links to reliable and evidence-based sources of information:

The NHS website

- www.nhs.uk/conditions/cardiovascular-disease/
- www.nhs.uk/live-well/eat-well/
- www.nhs.uk/live-well/exercise/

The British Heart Foundation website

- www.bhf.org.uk/informationsupport
- www.bhf.org.uk/informationsupport/support/healthy-living
- www.bhf.org.uk/informationsupport/support/healthy-living/healthy-eating/recipe-finder
- www.bhf.org.uk/informationsupport/support/practical-support/holidays-and-travel

The National Institute for Health and Care Excellence (NICE)
NICE is where you can find the latest evidence-based healthcare information for various health conditions.
www.nice.org.uk/guidance/conditions-and-diseases/cardiovascular-conditions

Recommended exercise resources

British Heart Foundation exercise at home
www.bhf.org.uk/informationsupport/support/cardiac-rehabilitation-at-home

British Heart Foundation exercise videos
www.bhf.org.uk/informationsupport/support/cardiac-rehabilitation-at-home/cardiac-rehabilitation-exercise-videos

List of available information booklets

Please let us know if you require any from the list below:

- □ Blood Pressure
- □ Heart attack quick guide
- □ Understanding Physical Activity
- □ Understanding weight
- □ Type 2 Diabetes
- □ Arrhythmias
- □ Angina
- □ Cardiac Rehabilitation
- □ Coronary Angioplasty
- □ Heart Surgery
- □ Medications
- □ Cardiac Tests
- □ General Physical Activity
- □ Sports Specific Guides
- □ Salt
- □ Sugar
- □ Food Portions
- □ Food Labels
- □ Saturated Fats
- □ Cholesterol
- □ Eat Well
- □ Alcohol
- □ Smoking

Notes:

Notes:

More information

For more information about the cardiology service at the Royal Free London, please visit our website: www.royalfree.nhs.uk/services/services-a-z/cardiology

Your feedback

If you have any feedback on this leaflet or for a list of references for it, please email: rf.communications@nhs.net.

Alternative formats

This leaflet is also available in large print. If you need this leaflet in another format – for example Braille, a language other than English or audio – please speak to a member of staff.

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Rating of perceived exertion (RPE): 6-20 Borg Scale

Score	Perceived exertion
6	No exertion at all
7	Extremely light
8	
9	Very light
10	
11	Light
12	
13	Somewhat hard
14	
15	Hard (heavy)
16	
17	Very hard
18	
19	Extremely hard
20	Maximal exertion