E·S·R·C ECONOMIC & SOCIAL RESEARCH COUNCIL

PRIFYSGOL BANGOR UNIVERSITY

My Health Professional Exercise Prescription Guide

. . . making exercise part of routine care for dialysis patients

Contents

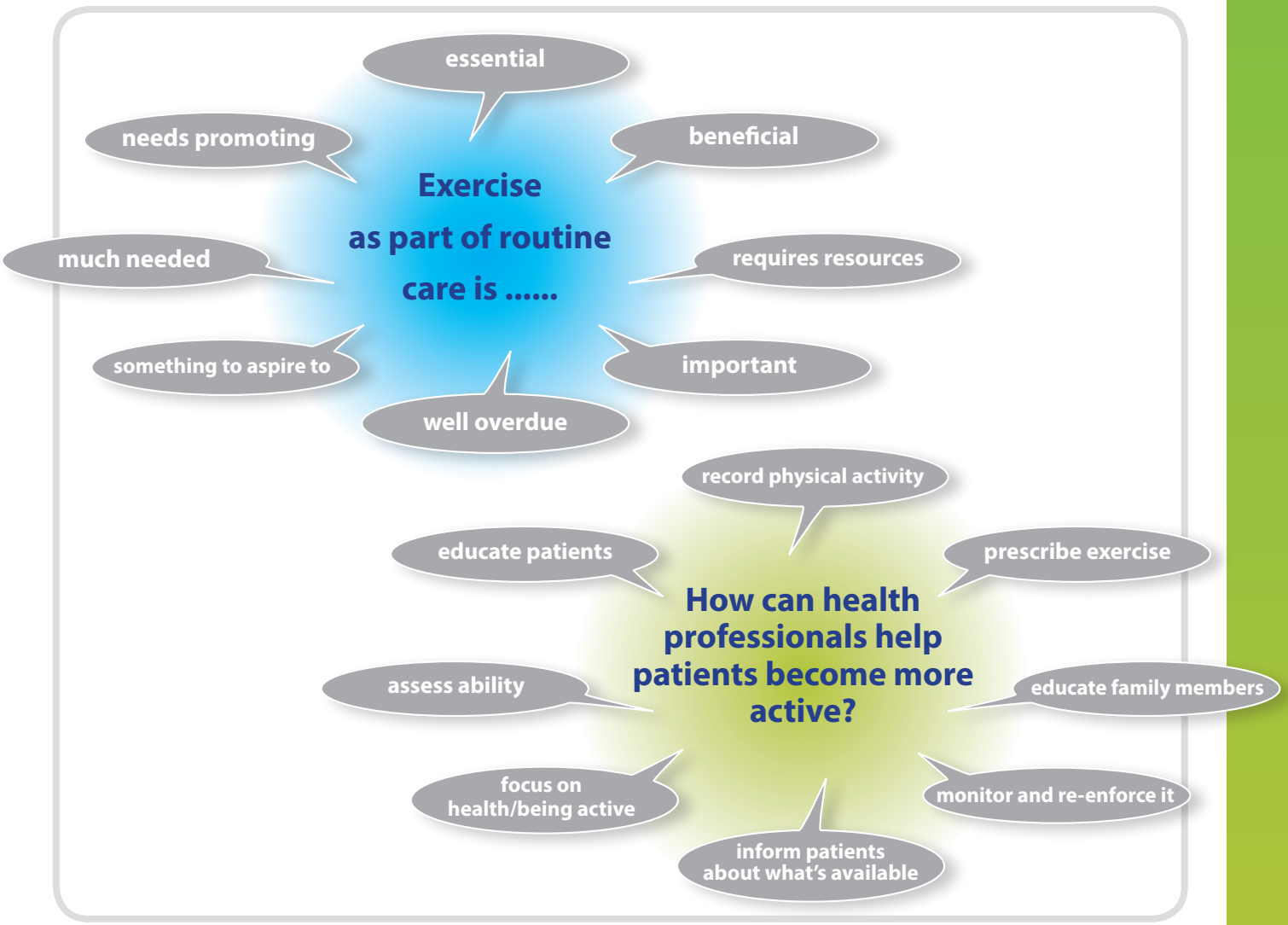
Introduction

The information given in this guide is intended to be used by any volunteer or health professional (nurse, doctor, physiotherapist, physiotherapy assistant, support worker), family member or community member who is interested in helping to promote exercise as part of routine care. This guide includes information required for the prescription and implementation of exercise during haemodialysis and the prescription of exercise outside of the renal unit.

The **My Health Professional Exercise Prescription Guide** is designed to be used in conjunction with the patient booklet **My Get Active Guide** and the MOVE website: **move.bangor.ac.uk**

To help us create these resources we held a series of focus groups with health professionals and dialysis patients from several renal units in Wales and England.

This is what you had to say....

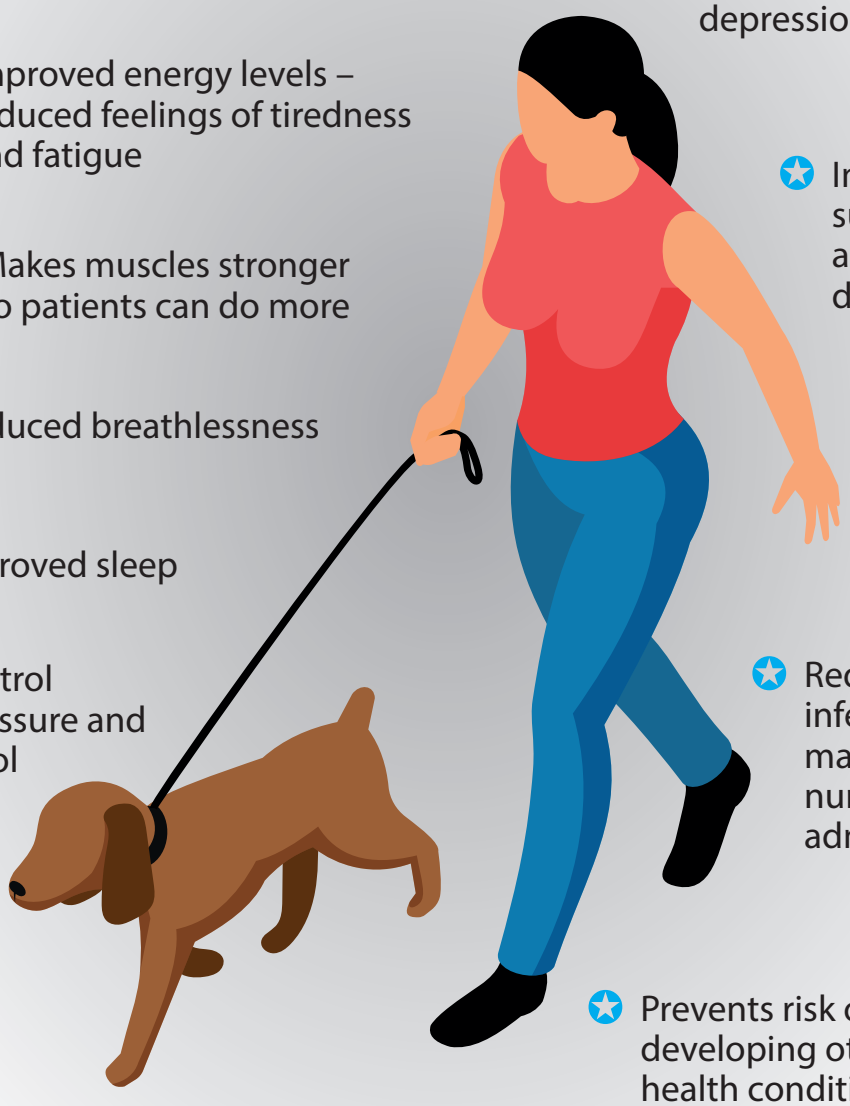


Benefits of Regular Physical Activity

Did you know that people on dialysis who are more active report feeling better – both physically and mentally? Physically active patients say they can do more, get out and about, have more energy, and have a greater sense of control of their lives.

Regular physical activity can have many specific benefits which include:

- Increased ability to do daily activities
- Improved mood – reduced feelings of stress, anxiety, depression, isolation
- Improved energy levels – reduced feelings of tiredness and fatigue
- Improved blood sugar, controlling and preventing diabetes
- Makes muscles stronger so patients can do more
- Reduced breathlessness
- Reduced risk of falling
- Improved sleep
- Helps control blood pressure and cholesterol
- Reduced risk of infections and may even reduce number of hospital admissions
- Prevents risk of developing other health conditions – diabetes, heart disease, even some cancers



Physical activity can improve patient health, wellbeing and quality of life!

Exercise as Part of Routine Care

If patients are going to successfully change their physical activity behaviour; exercise and being physically active needs to be promoted, encouraged, prescribed, monitored and re-enforced by the **whole renal multidisciplinary team (MDT)** and the **patient's family, friends and carers.**

- Renal staff should familiarise themselves with this guide and the MOVE website: move.bangor.ac.uk
- Print the **Exercise as Part of Routine Care – Flowchart** (page 6) and display it in key rooms within the renal unit.
- Consultants and nurses should print and include the **Quick Check - Is My Patient Active Enough?** form (page 7) in their consultation paperwork. In your discussions, highlight the importance of physical activity to patients **and** their families.
- In your monthly MDT meetings, discuss patients who may be eligible for increasing their physical activity.
- Identify exercise champions within the renal unit to drive this new initiative.
  - ★ The champions can help with identification and screening of patients, assessment and exercise prescription
- Create an exercise folder for each patient. Print and include the following forms (Appendix 2-10):
  - ★ **Exercise Eligibility Screening Form**
  - ★ **Agreement and Consent Form**
  - ★ **Patient Assessment Form**
  - ★ **Exercise Prescription Form**
  - ★ **Monthly Exercise Logs**
- Consider printing the following helpful resources to help you when exercising patients:
  - ★ **Quick Check Card - Is it safe to exercise today?** (page 22)
  - ★ **Borg CR100 Rating of Perceived Exertion Scale** (page 20)
  - ★ **Monitoring During Exercise** and **Procedure for Cycling During Dialysis** (Page 26, 27)
- Set up a befriending scheme or buddy system - patients who are physically active and/ exercise during dialysis can help others become more active.
- All staff can help with the implementation of exercise during dialysis. By working together the renal team can make exercise part of routine care and support patients to become more physically active **even if cycling during dialysis is not considered an option in your renal unit**.

Exercise is Medicine
Prescribe it!

Use the flowchart on the next page and follow the steps to help you and your renal team incorporate exercise as part of routine care.

You can help make exercise part of routine care!

Exercise as Part of Routine Care – Flowchart

Is My Patient Active Enough?

Use the **Quick Check – Is My Patient Active Enough?** on page 7

Yes

Encourage continued physical activity

No

Discuss importance of physical activity and consider prescribing exercise:

- ★ **During dialysis AND/OR**
- ★ **Outside of the renal unit**

Screen patient for exercise:

- ★ Complete **Exercise Eligibility Screening Form**

If prescribing exercise during dialysis:

- ★ Complete **Agreement and Consent Form**

- ★ Complete patient assessment and **Patient Assessment Form**
- ★ Prescribe exercise – complete **Exercise Prescription Form**
- ★ Signpost patients to:
  - ★ **My Get Active Guide**
  - ★ MOVE website: move.bangor.ac.uk
- ★ Encourage patients to complete **My Goals**

Exercise during dialysis

Complete:

- ★ **Monthly Dialysis Exercise Log – Cycling**
- ★ **Monthly Dialysis Exercise Log – Strength Exercise (if completed in your unit)**

Exercise outside of renal unit

Encourage patients to complete:

- ★ **My Aerobic Exercise Diary**
- ★ **My Strength Exercise Diary**
- ★ **My Flexibility Exercise Diary**

- ★ Review patient exercise logs/diaries regularly

Suggestion: *This could be done during routine appointments/monthly ward rounds/during dialysis*

- ★ Complete **Patient Assessment Form** every 6 months

Quick Check – Is My Patient Active Enough?

For health benefits guidelines recommend:

- 150 minutes of moderate intensity activity per week OR
- 75 minutes of strong intensity activity per week OR
- A combination of both moderate and strong intensity activity

Multiply:
days per week x minutes per day

Ask your patient:

Question	Answer
1. How many days per week do you do moderate intensity activity or greater (at least 10 minutes at a time)? [For definitions, see Activity Key below]	
2. On those days, how many minutes do you spend doing that activity?	
Result:	
Inactive 0 mins moderate activity	
Low Activity < 150 mins moderate activity (< 75 mins strong activity)	
Medium Activity 150 – 300 mins moderate activity (75-150 mins strong activity)	
High Activity > 300 mins moderate activity (>150 mins strong activity)	

Activity Key:

Moderate Intensity Activity	Strong Intensity Activity
Housework: hoovering, mopping, washing windows, scrubbing	Daily activities: carrying heavy loads
Gardening: mowing lawn, raking, weeding	Gardening: shovelling, heavy work
Walking, marching, stepping	Very brisk walking, hiking, jogging
Cycling (level ground/few hills)	Cycling (faster/uphill)
Swimming	Swimming (hard)
Dancing	
Sporting activities: golf (walking, pulling clubs)	Sporting activities: football, tennis, rugby
Exercise classes (moderate) – aerobics, aqua aerobics, dance, tai chi, chair exercise	Exercise classes (hard)

Moderate intensity activity = makes you feel warm, slightly out of breath, maybe even a little sweaty

Strong intensity activity = makes you feel very warm and sweaty, you would struggle to have a conversation doing that activity

How Can Dialysis Patients Be More Active?

There are lots of ways patients can increase their level of physical activity. It is important that you encourage your patients to choose something that they enjoy and to build this physical activity into their daily life.

It doesn't matter if your patient is not reaching the recommended target or if they are nowhere near it.

The important thing now is that you encourage your patients to **start changing a few habits now** and to **gradually increase their level of physical activity over time.**

Why not suggest some of these activities:

At Home

- Avoid sitting or lying down for long periods during the day – move every 30 minutes
- Walk around when you are on the phone
- Be more active around the house – hoovering, sweeping, mopping
- Be more active in the garden – weeding, raking, mowing the lawn
- Take the dog for a walk
- Exercise at home (refer patients to the My Get Active Guide)

In Your Leisure Time

- Go for a walk with friends/family
- Exercise at home (refer patients to the My Get Active Guide)
- Take part in organised activities in your local community
  - walking groups
  - chair exercise classes
  - dance classes
  - aerobics
  - yoga
  - tai chi
  - going to your local gym
- Exercise Referral Schemes (is this an option for your patients?)
- Go cycling or swimming
- Playing sport – football, golf, tennis, rugby

Out and About

- Try using the stairs instead of the lift
- Walk to the shops
- Park further away, avoid trying to get the closest parking space to the shop
- Get off the bus one stop early
- Ask your taxi to drop you further from the door

Exercise during Dialysis

Encourage patients to exercise during dialysis.

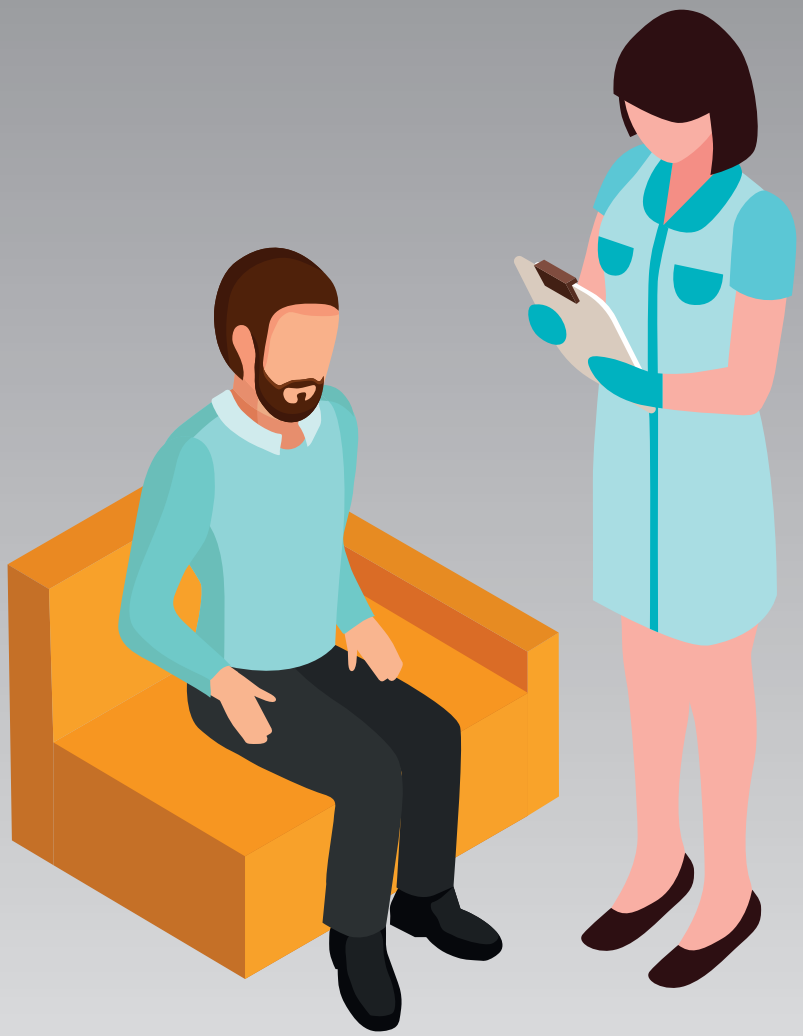
Use this guide to facilitate:

- Cycling during dialysis AND/OR
- Muscle strengthening exercise

Screening Patients

Who is eligible to exercise?

Use the **Exercise Eligibility Screening Form** (Appendix 2) to help you decide which dialysis patients could benefit from increasing their level of physical activity.



Obtaining informed consent

Make sure that each patient who is wishing to take part in exercise during dialysis understands the possible benefits and risks and signs an **Agreement and Consent Form** (Appendix 3). This document should be signed by the patient and the health professional.

Note: All required documents can be found at the back of this guide (See Appendices on page 36).

Assessment of Patient

Before embarking on an exercise programme, it is important to know how your patient is currently - your patient's baseline level.

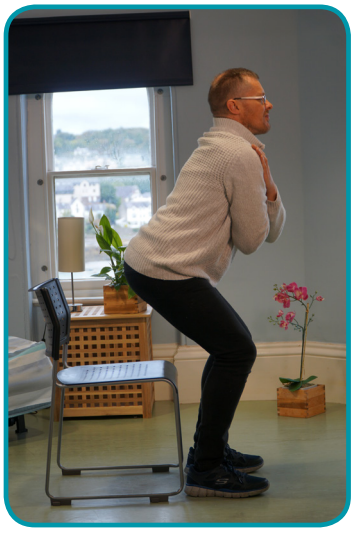
Knowing this "baseline" level will help you with the following:

- Prescribing realistic exercise targets for your patient
- Evaluating progress – by comparing follow up assessments to baseline assessments
- Recording improvements – this is a powerful motivating tool that you can use to help encourage and support your patients

Assessments to complete:

The following are examples of assessments that could be completed at the beginning of an exercise programme and to monitor progress throughout the programme.

- Blood Pressure
- Blood Lipids
- Blood Glucose
- Anthropometric Measures
- Functional Ability– with option to predict cardio-respiratory fitness
- Physical Function – lower body strength, upper body strength
- Falls Risk Identification
- Goal Evaluation



Suggestion: Try to repeat follow up assessments every 6 months

NOTE: Use the **Patient Assessment Form** (Appendix 4) to record the results of the patient assessment or amend the Patient Assessment Form to include assessments completed by your renal unit.

Anthropometric Measures

Body composition is a key component of a patient's physical fitness. There are some simple ways in which you can quickly assess a patient's body composition as part of your patient assessment.

1. Calculate your patients Body Mass Index (BMI)

To calculate patients BMI, follow these simple steps

a. Measure height in meters (example 165 cm equals 1.65 m)

m^2 = height (m) x height (m)

Example: 1.65 x 1.65 = 2.72

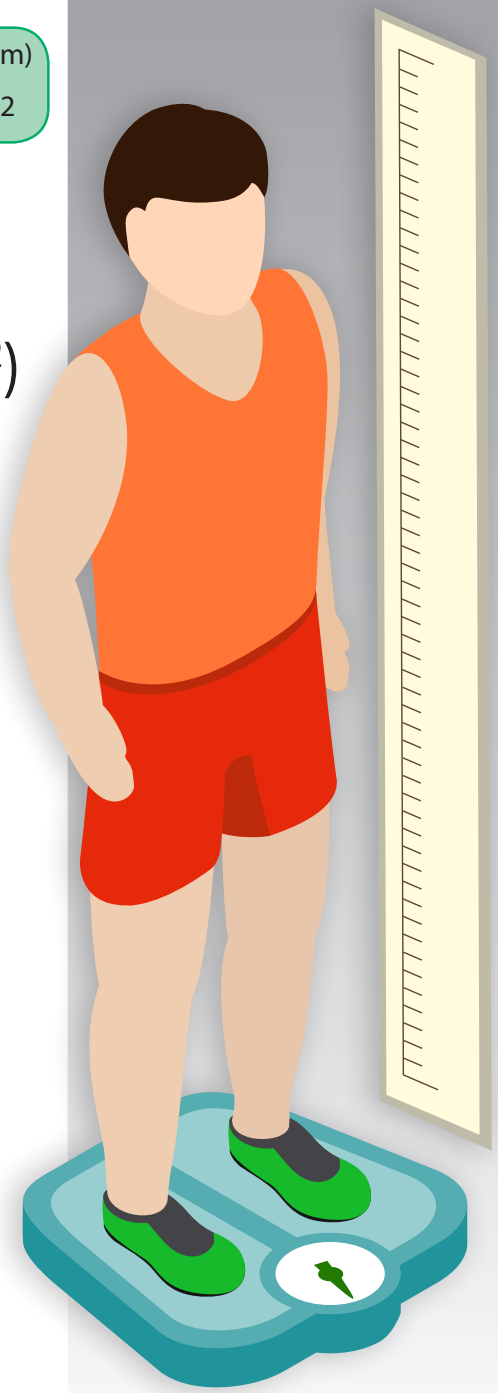
b. Measure weight in kilograms

c. Use the following equation to calculate BMI

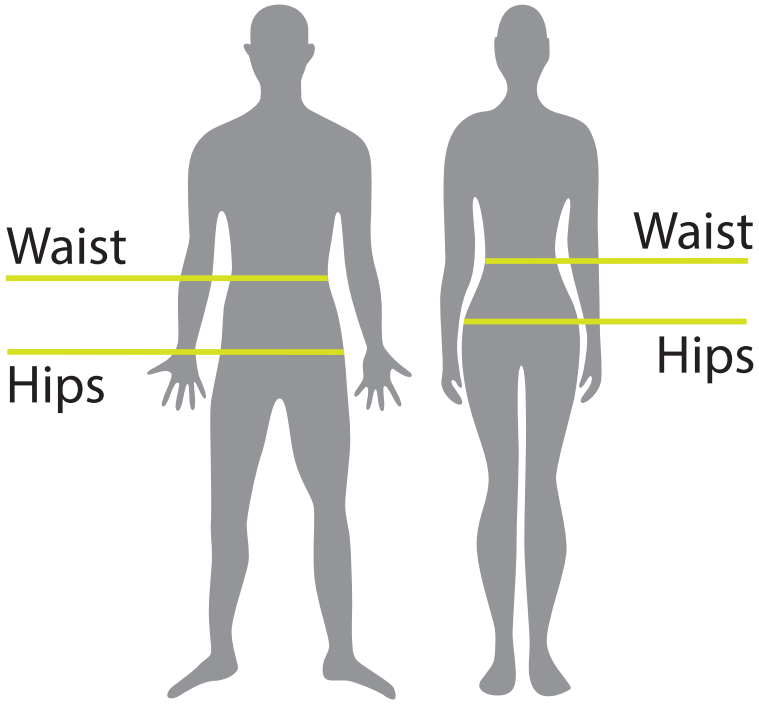
$$BMI = Body\ Weight\ (kg) \div Height\ (m^2)$$

d. Use this table to determine if patients BMI is classed as underweight, normal weight, overweight or obese

BMI	Classification
< 18.5	Underweight
18.5 – 24.9	Normal
25 – 29.9	Overweight
≥ 30	Obese



2. Measure waist and hip circumference and determine waist hip ratio (WHR)



Carrying too much fat around the stomach raises risk of heart disease, type 2 diabetes and stroke.

If waist circumference and WHR are above recommended values then encourage your patients to lose weight.

Equipment needed:

Stretch resistant measuring tape

Procedure:

- ★ Patient should stand weight evenly distributed, feet close together, arms by their side.
- ★ **Measure waist -** midway between the top of the iliac crest and lower margin of the last palpable rib (should be measured at the end of normal expiration).
- ★ **Measure hip -** widest portion of the buttocks.
- ★ Repeat each measurement twice, if within 1 cm, calculate the average waist and hip. If difference exceeds 1 cm, repeat measurements.
- ★ **Calculate Waist Hip Ratio:** waist ÷ hip

Use tables below to determine risk classification

Waist circumference and disease risk

Health Risk	Women	Men
Low risk	< 80 cm	< 94 cm
Moderate risk	80 – 88 cm	94 – 102 cm
High risk	> 88 cm	> 102 cm

Waist hip ratio and disease risk

Health Risk	Women	Men
High risk	> 0.85	> 0.90

Functional Ability

Duke Activity Status Index Questionnaire (DASI)

The DASI is a self-administered questionnaire that measures a patient's functional capacity. It gives you an indication of a patient's ability to do daily activities. It can also be used to give an estimate of a patient's peak oxygen uptake (cardio-respiratory fitness). The **DASI Questionnaire** should be completed by the patient and scored by a member of staff (see **DASI Scoring Form**, Appendix 5 and 6).

Physical Function

Lower Body Strength

Test: 60 second Sit to Stand

The sit to stand test is a measure of lower body strength and is an indicator of a person's functional ability.

How to perform the test:

- Patient should sit upright on a sturdy chair (standard height of approx. 45 cm).
- Instruct patient to sit so that their feet are flat on the floor.
- Patient should attempt the test with their *arms crossed over their chest.
- Count down from three – "3, 2, 1, Go", instruct the patient to rise from the chair, stand up tall and sit back down again.
- Each time the patient stands up and sits down is counted as one sit to stand.
- Use a stopwatch to time 60 seconds and count how many sit to stands your patient can complete.

*note: if a patient cannot complete a sit to stand with their arms crossed, instruct them to use the chair arms and make a note of this on the **Patient Assessment Form** (Appendix 4).

Upper Body Strength

Test: Arm Curl Test

The arm curl test is a measure of upper body strength and is an indicator of a person's functional ability.

How to perform the test:

- Patient should sit upright on a sturdy chair (standard height of approx. 45 cm).
- Instruct patient to sit so that their feet are flat on the floor.
- Weight (if being used) should be held in the dominant hand.

5lb weight for females
8lb weight for males

- Instruct patient to hang arm by their side, holding weight in the hand shake position.
- Count down from three – "3, 2, 1, Go", instruct patient to complete arm curl movement, raising hand until it meets the shoulder and lowering back down to the starting position.
- It is important that the movement is complete and the elbow remains close to the patients side.
- Use a stopwatch to time 30 seconds and count how many arm curls your patient can complete. Record result on the **Patient Assessment Form.**

Note: All required documents can be found at the back of this guide in the Appendices on page 36.

Falls Risk Identification

Use the **Falls Risk Identifier Form** (Appendix 7) to help you identify which patients may have the greatest falls risk. This simple tool will also help you to determine the best action for falls prevention/treatment.

Evaluate Patients Goals

- Patients are encouraged to set goals in their **My Get Active Guide**.
- Goals that are important to patients are much more likely to result in successful behaviour change.
- Confidence is also important – if a patient is not confident that they can achieve their goal, then they are much less likely to succeed.
- As part of your assessment of your patient – evaluate your patient's goals.
  - If they have low confidence ask them why that is, perhaps there are some simple ways that confidence can be increased:
    - success stories
    - pairing patients together
    - suggesting solutions to possible barriers
- Support from you and others can help to increase a patient's self-confidence and the chances of a positive behaviour change.

Exercise Prescription

What you need to know when prescribing exercise

To improve the health and fitness of the whole body, ideally exercise programmes should include the following kinds of activities

- Aerobic activities
- Muscle strengthening activities
- Flexibility activities

Fitter and stronger patients may result in increased self-care on the unit

Aerobic activities – these are activities that work the heart and lungs. Aerobic activities result in an increase in heart rate (heart is working harder to pump blood carrying oxygen to moving muscles) and breathing rate (the lungs work harder to breathe in more air) and the person exercising will start to feel warmer and may even sweat! This is a normal response to aerobic activity.

Regular aerobic activity will improve patient fitness – this will mean that they will be able to do more, walk further for longer, go up and down stairs more easily, have more energy, improved mood, and generally feel fitter and better!

Examples of aerobic activities include:

Brisk walking, marching, stepping, cycling, swimming, dancing, exercises classes, housework, gardening, variety of sports

Cycling during dialysis is an excellent way for patients to take part in aerobic activity

Muscle strengthening activities – these are activities designed to make muscles stronger. Stronger muscles will help improve balance and help patients with their daily activities – examples: lifting/carrying shopping or heavy loads, getting on/off a chair, getting in/out of a car, going up and down stairs, being able to do more things for longer, daily activities will become much easier.

Remember: even small changes in muscle strength can make big differences to a patient's daily life.

Examples of strengthening activities include:

Strengthening exercises (examples given in this information guide and patient booklet), strength training in the gym, lifting/carrying loads

Flexibility activities - these are activities that help patients maintain or improve the range of movement in muscles and joints. Better flexibility helps with daily activities that require bending, reaching, stretching. Examples of activities include washing and dressing, getting in/out of a car, reaching into cupboards, bending down to pick up something off the floor.

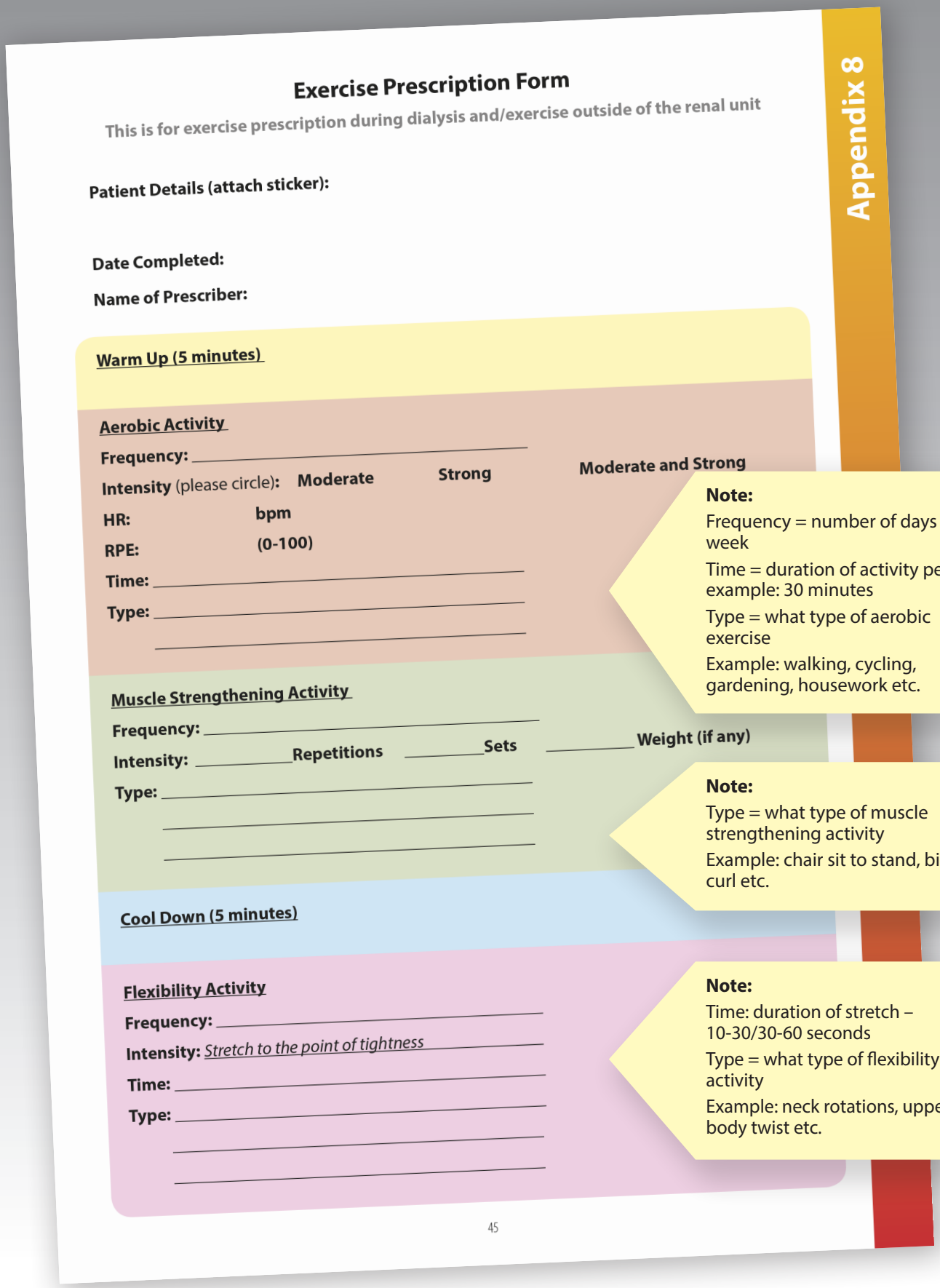
Examples of flexibility activities include:

Stretching exercises (examples given in patient booklet), Tai Chi, Yoga

Exercise Prescription Form

Use the Exercise Prescription Form (Appendix 8) to prescribe exercise during dialysis and/or exercise outside of the renal unit.

Below is a copy of the Exercise Prescription Form, use the notes given below and the information in this chapter (Exercise Prescription) to help you complete an exercise prescription for your patient.



Appendix 8

Exercise Prescription Form

This is for exercise prescription during dialysis and/exercise outside of the renal unit

Patient Details (attach sticker):

Date Completed:

Name of Prescriber:

Warm Up (5 minutes)

Aerobic Activity

Frequency: _____

Intensity (please circle): **Moderate** **Strong** **Moderate and Strong**

HR: **bpm**

RPE: **(0-100)**

Time: _____

Type: _____

_____

Muscle Strengthening Activity

Frequency: _____

Intensity: _____ **Repetitions** _____ **Sets** _____ **Weight (if any)**

Type: _____

_____

_____

Cool Down (5 minutes)

Flexibility Activity

Frequency: _____

Intensity: *Stretch to the point of tightness*

Time: _____

Type: _____

_____

_____

45

Note:
Frequency = number of days per week
Time = duration of activity per day example: 30 minutes
Type = what type of aerobic exercise
Example: walking, cycling, gardening, housework etc.

Note:
Type = what type of muscle strengthening activity
Example: chair sit to stand, bicep curl etc.

Note:
Time: duration of stretch – 10-30/30-60 seconds
Type = what type of flexibility activity
Example: neck rotations, upper body twist etc.

Ensure Patients Exercise Safely

The following are safety guidelines which apply to exercise during dialysis and exercise outside of the renal unit:

- ⓘ Instruct patients to always include a warm up before exercise, see warm up guidelines on page 18.
- ⓘ Instruct patients to always include a cool down after exercise, see cool down guidelines on page 34.
- ⓘ Advise patients to wear comfortable clothing and appropriate shoes (good support and padding).
- ⓘ If patients have diabetes, instruct them to check their blood glucose and to ensure it is within the desired range for exercise (5.5 – 16.7 mmol/L).
- ⓘ Instruct patients to adhere to the fluid and dietary restrictions set by the renal team.
- ⓘ If your patient has a fistula or graft, exercising the arm is recommended. However, do not exercise it during dialysis (when it is needled). Instead, instruct patients to exercise the fistula arm between dialysis sessions (when bleeding has stopped) and to avoid impact on the access site itself.
- ⓘ Ensure patients know when to stop exercising. If patient experiences any of the symptoms below, instruct them to stop immediately and to contact a doctor or nurse (note: patients are given this information in the **My Get Active Guide**).

Your patient is experiencing/feels any of the following:

- **chest pain/angina**
- **dizzy or light headed**
- **nauseous**
- **cannot catch breath**
- **pain**
- **infection or fever and achy muscles**
- **excessive fatigue**

Warming Up

Patients should start an exercise session with at least a **5 minute, light intensity warm up**. The aim of the warm up is to get the body ready for exercise and to get the circulation moving to supply blood to the working muscles. Using the Borg CR100 Rating of Perceived Exertion Scale (see page 20), prescribe a light intensity activity that they would rate 6-12 (very weak - light).

A warm up could simply be a light intensity version of the exercises they are planning to do for the main aerobic or muscle strengthening activities or you can prescribe the suggested warm up activities on page 14 of the **My Get Active Guide**.

How much physical activity should patients do?

To achieve and maintain health and fitness benefits, current guidelines suggest patients should complete regular aerobic, strengthening and flexibility exercises as outlined below:

Aerobic Activity

How much and how often depends on the intensity of the activity. Guidelines suggest **moderate intensity aerobic activity should be completed on 5 or more days per week** or **strong intensity aerobic activity should be completed on 3 or more days per week** (see table below for more information).

Intensity of Activity	Days per week	Time per Day	Total Time per Week	Heart Rate (% HR_{max})	RPE (0-100)	Talk Test
Moderate	5 or more	30-60 minutes	150 minutes	64-75	23-30	Be able to talk, not sing
Strong	3 or more	20-60 minutes	75 minutes	76-95	42-75	Not be able to say more than a few words

Moderate activity = this is activity that makes patients feel warm, slightly out of breath, maybe even a little sweaty. Patients should be able to talk not sing.

Strong activity = this is activity that makes patients feel very warm and sweaty, they would struggle to have a conversation doing that activity.

Important:

The recommended amount per day (30-60 minutes) can be accumulated in one continuous activity or broken down into several **10-minute bouts** throughout the day.

Starting with much less than this amount of exercise is completely fine too!

How to gauge the intensity of an activity?

You can gauge the intensity of an activity for your patient using:

1. **Heart Rate AND/OR**
2. **Borg CR100 Rating of Perceived Exertion (RPE) Scale AND/OR**
3. **Talk Test**

Heart Rate

Heart rate can be used to gauge the intensity of an activity when expressed as a percentage of maximum heart rate (also known as HR_{max}).

Predicted maximum heart rate can be calculated using the following equation:

$$HR_{max} = 208 - 0.7(age)$$

Example - a person who is 65 years old would have a predicted HR_{max} of:

$HR_{max} = 208 - 0.7(65)$

$HR_{max} = 208 - 45.5$

HR_{max} = 163 bpm

If a patient is taking a medication that affects their HR then use other methods to gauge exercise intensity

Using the % HR_{max} ranges for moderate and strong intensity activity (see table on page 18), this person would need to achieve the following heart rate ranges:

ⓘ Moderate Intensity Activity: 104 – 122 bpm

ⓘ Strong Intensity Activity: 124 – 155 bpm

Borg CR100 Rating of Perceived Exertion (RPE) Scale

Use the scale (on page 20) to gauge the intensity of an activity for your patient. Instruct them to report how strong their perception or feeling is.

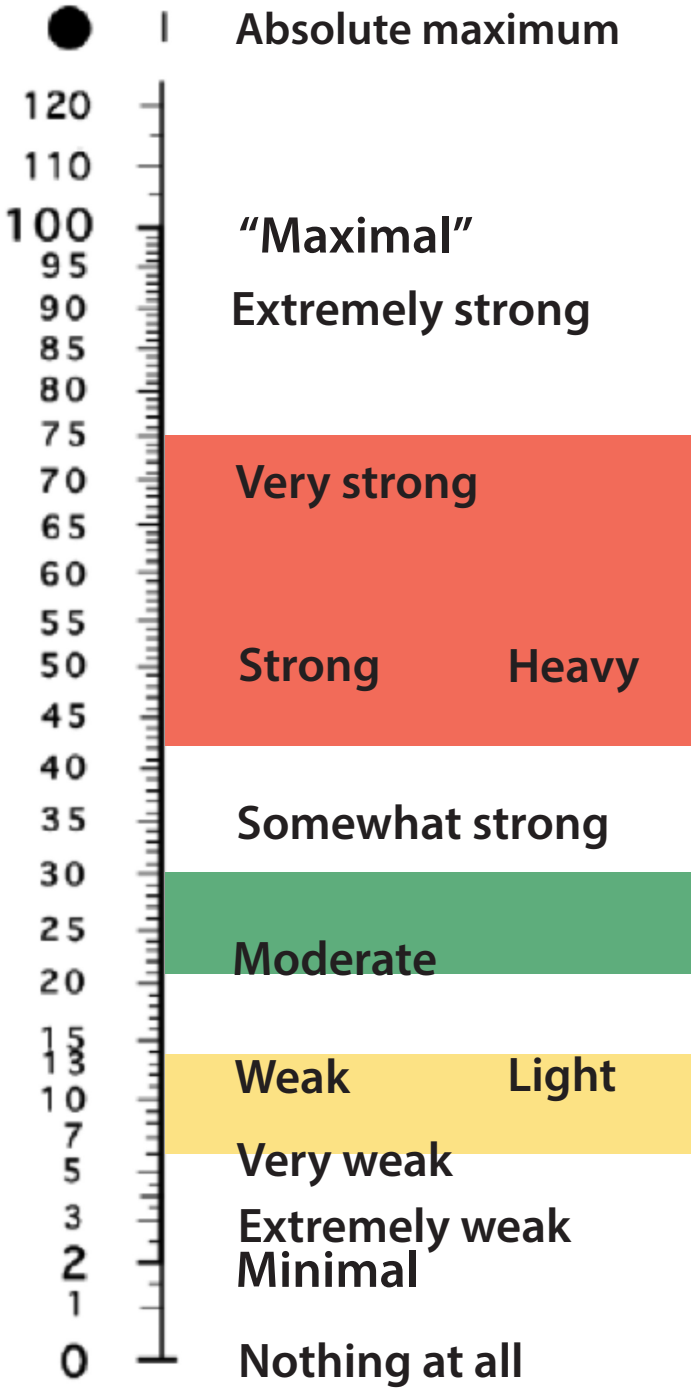
Explain that they should try to focus on their overall feeling of exertion; this should include their heart rate, breathing, sweating and muscle fatigue.

To use this scale correctly patients should look at the verbal descriptors and then choose the number in the vicinity of the word that best describes what they are experiencing.

"Maximal" (100) is an important level of intensity. It is the most intense perception they have ever had. "Nothing at all" (0) means that they do not feel anything at all. For example - if they feel the activity is moderate, then they may give an RPE rating of 25.

How a patient rates the intensity of an activity will depend on their current level of fitness and may be very different to what someone else would rate the same activity.

Borg CR100 Rating of Perceived Exertion (RPE) Scale



Strong Activity – is activity that you would rate 42-75 on the RPE scale; the activity is "strong – very strong" for you.

Moderate Activity – is activity that you would rate 23-30 on the RPE scale; the activity is "moderate" for you.

Light Activity – is activity that you would rate 6-12 on the RPE scale, the activity is "very weak - light" for you.

Talk Test

This is a simple way to judge the intensity of an activity for your patient.

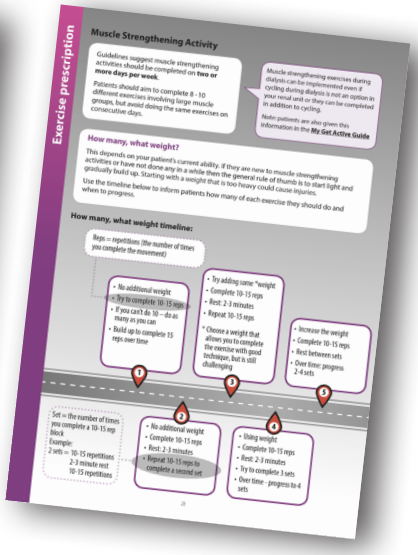
Moderate intensity activity – patients should be able to talk but not sing.

Strong intensity activity – patients should not be able to say more than a few words without getting out of breath.

Action for Health Professional:

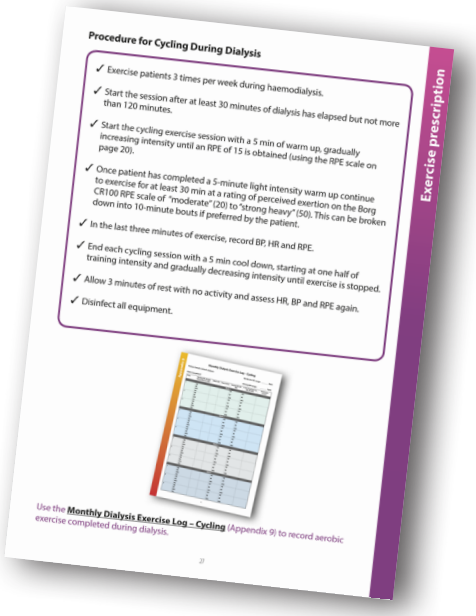
1. To prescribe aerobic exercise outside of the renal unit, use the information given above and signpost patients to the My Get Active Guide.

To prescribe muscle strengthening activity skip to page 28.



OR

2. To prescribe and implement intradialytic exercise (cycling during dialysis):



continue reading

Intradialytic Exercise – Must Know Guide

Quick Check Card

Consider adapting or printing out to help you when exercising patients

Is it safe to exercise today?

1. How are they feeling today?

2. Any signs and symptoms of acute infections (if yes, avoid exercise):
   - ★ malaise, fever, atypical fatigue, severe headaches/dizziness, chest pain, nausea, diarrhoea, flu-like symptoms.

3. Any excessive intradialytic weight gain that severely impacts on resting BP and HR indices (if yes, avoid exercise):
   - ★ BP > 160/100 mmHg and HR > 100 bpm and signs of peripheral oedema.

4. Erratic/fluctuating BP and HR (if yes, avoid exercise).

5. If diabetic, check blood glucose (BG):
   - ★ If taking insulin and/or insulin secretagogues and BG < 5.5 mmol/L, patient should consume 15g carbohydrates and re-test. Repeat until BG > 5.5 mmol/L.
   - ★ If BG > 16.7 mmol/L **AND** patient in ketosis (fruity breath, rapid breathing or shortness of breath, excessive thirst, frequent urination, stomach pain, nausea, vomiting, fatigue or confusion), dehydrated or feeling unwell (avoid exercise). If BG > 16.7 mmol/L but patient not in ketosis, exercise with caution.

Exercise Training Conditions:

- ✪ Training room temperature range: 18-21°C.
- ✪ Humidity: 50% (not more than 65%).
- ✪ Circulating fans should be made available to control temperature and ventilation.

What bike do we use?

There are several exercise bikes that can be used to allow cycling during dialysis:

★ Free standing bikes

★ Exercise bikes that attach to the therapy bed/chair

★ Exercise bikes for use with therapy chairs only

What you choose will depend on:

★ Budget

★ Type of therapy beds/chairs available in the unit

★ Storage space

★ Time available for bike set up

Visit the MOVE website for examples of exercise bikes that are available - move.bangor.ac.uk

Bike Set Up:

If your renal unit has a Monark bike (like this one), watch the video on our website to learn more about how to set up this bike (move.bangor.ac.uk).

If your renal unit has a different make/model of bike, set up the bike as per manufacturer's instructions/training provided.

Note: Ensure dialysis line and access is not compromised.

How to determine exercise duration and intensity for each patient?

This is based on current guidelines. Your patients **target** is to complete cycling (aerobic activity) as follows:

Intensity of Activity	Days per week	Time per Day	Total Time per Week	Heart Rate (% HR_{max})	RPE (0-100)	Talk Test
Moderate	5 or more	30-60 minutes	150 minutes	64-75	23-30	Be able to talk, not sing
Strong	3 or more	20-60 minutes	75 minutes	76-95	42-75	Not be able to say more than a few words

Frequency: at least 3 days per week (on dialysis)

Intensity: at least *moderate intensity, choose a cycling resistance (watts) that your patient considers moderate intensity

Time: 30-60 minutes

Type: cycling during dialysis

***moderate intensity exercise is exercise that is:**

- ★ **64-75% HR_{max} AND/OR**
- ★ **RPE 23-30 AND/OR**
- ★ **Talk Test: patient can talk but not sing**

What if my patient cannot exercise at this intensity or for at least 30 minutes?

- Start off with light exercise and progress slowly over time.
- This may mean your patient cycles at 0 watts (no resistance) for 5 minutes.
- Over time progress to 10 minutes of cycling and eventually 30 minutes.
- Over time increase resistance as tolerated by your patient.

Exercise Progression

This will be different for each patient:

★ Progress the volume of exercise gradually over time (weeks/months) by adjusting duration, frequency, and/or intensity until patient is meeting the current recommended guidelines.

★ There may be times when you need to reduce duration, intensity, frequency if your patient has been unwell.

Use the table below to help you prescribe a progressive aerobic exercise programme for your patient:

Exercise Programme Phase	Week	Intensity	Target Duration (minutes)	Comment
Introduction	1 - 4	Moderate	30	Choose a resistance that the patient considers moderate intensity (use % HR_{max} and RPE as a guide) If patient cannot complete 30 minutes, break down into 10 minute bouts and progress as tolerated
Progression	5 - 13	Moderate	30	If patient can cycle for 30 minutes increase resistance
Improvement	14 - 24	Moderate - Strong	30 - 40	Increase duration and resistance as tolerated
Maintenance	25+	Moderate - Strong	40 - 60	Increase duration and resistance as tolerated

General rule of thumb:

For progression - always increase duration first, then increase intensity (resistance on exercise bike)

Monitoring During Exercise

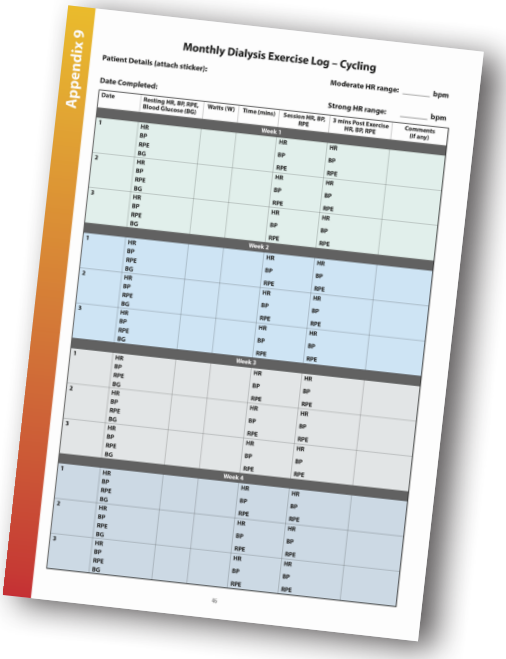
- During exercise, monitor signs and ask patient to report symptoms of pain, excessive fatigue, altered consciousness, overheating, cyanosis, anxiety, severe breathlessness, chest pain, dizziness/light-headedness.
- Check appearance for signs of overheating or cyanosis (blueish or greyish skin, lips, finger nails), excessive sweat, loss of co-ordination.
- Overheating may compromise haemodynamic stability, therefore ensure that ventilation fans are available and used to help patients dissipate heat more effectively.
- Check HR and BP at least once during the last 3-4 minutes of the cycling session.
- Pay particular attention to patients with long standing diabetes and neurological deficits as very often they do not "feel" development of adverse symptoms (i.e. ischemic pain). Sometimes, signs of adverse effects appear very quickly i.e. sudden changes in colour, consciousness, responsiveness etc.
- If hypertensive, regularly check blood pressure during exercise. If values exceed 220/105 mmHg, reduce exercise intensity or cease exercising until blood pressure reduces.

Safety Checks Post Exercise

- 3 minutes after the end of all training components, check BP and HR again to ensure these have returned to near normal levels and that patients do not experience any signs/symptoms of hypotension.
- Remain in the dialysis unit for at least 20 minutes after the last patient has ceased exercising. If diabetic, ensure that patients are not experiencing any symptoms of hypo/hyperglycaemia. Be aware of possibility of hypotension during remainder of the dialysis session.

Procedure for Cycling During Dialysis

- ✓ Exercise patients 3 times per week during haemodialysis.
- ✓ Start the session after at least 30 minutes of dialysis has elapsed but not more than 120 minutes.
- ✓ Start the cycling exercise session with a 5 minute warm up, gradually increasing intensity until an RPE of 15 is obtained (using the RPE scale on page 20).
- ✓ Once patient has completed a 5 minute light intensity warm up, continue to exercise for at least 30 minutes at a rating of perceived exertion on the Borg CR100 RPE scale of "moderate" (20) to "strong heavy" (50). This can be broken down into 10 minute bouts if preferred by the patient.
- ✓ In the last three minutes of exercise, record BP, HR and RPE.
- ✓ End each cycling session with a 5 minute cool down, starting at one half of training intensity and gradually decreasing intensity until exercise is stopped.
- ✓ Allow 3 minutes of rest with no activity and assess HR, BP and RPE again.
- ✓ Disinfect all equipment.


Appendix 9

Monthly Dialysis Exercise Log – Cycling

Patient Details (attach sticker):

Date Completed:

Moderate HR range: _____ bpm

Strong HR range: _____ bpm

Date	Resting HR, BP, RPE, Blood Glucose (BG)	Watts (W)	Time (mins)	Session HR, BP, RPE	3 mins Post Exercise HR, BP, RPE	Comments (if any)
			Week 1			
1	HR BP RPE BG			HR BP RPE	HR BP RPE	
2	HR BP RPE BG			HR BP RPE	HR BP RPE	
3	HR BP RPE BG			HR BP RPE	HR BP RPE	
			Week 2			
1	HR BP RPE BG			HR BP RPE	HR BP RPE	
2	HR BP RPE BG			HR BP RPE	HR BP RPE	
3	HR BP RPE BG			HR BP RPE	HR BP RPE	
			Week 3			
1	HR BP RPE BG			HR BP RPE	HR BP RPE	
2	HR BP RPE BG			HR BP RPE	HR BP RPE	
3	HR BP RPE BG			HR BP RPE	HR BP RPE	
			Week 4			
1	HR BP RPE BG			HR BP RPE	HR BP RPE	
2	HR BP RPE BG			HR BP RPE	HR BP RPE	
3	HR BP RPE BG			HR BP RPE	HR BP RPE	

Use the **Monthly Dialysis Exercise Log – Cycling** (Appendix 9) to record aerobic exercise completed during dialysis.

Muscle Strengthening Activity

Guidelines suggest muscle strengthening activities should be completed on **two or more days per week**.

Patients should aim to complete 8 - 10 different exercises involving large muscle groups, but avoid doing the same exercises on consecutive days.

Muscle strengthening exercises during dialysis can be implemented even if cycling during dialysis is not an option in your renal unit or they can be completed in addition to cycling.

Note: patients are also given this information in the **My Get Active Guide**

How many, what weight?

This depends on your patient's current ability. If they are new to muscle strengthening activities or have not done any in a while then the general rule of thumb is to start light and gradually build up. Starting with a weight that is too heavy could cause injuries.

Use the timeline below to inform patients how many of each exercise they should do and when to progress.

How many, what weight timeline:

Reps = repetitions (the number of times you complete the movement)

1
- No additional weight
- Try to complete 10-15 reps
- If you can't do 10 – do as many as you can
- Build up to complete 15 reps over time

2
- No additional weight
- Complete 10-15 reps
- Rest: 2-3 minutes
- Repeat 10-15 reps to complete a second set

Set = the number of times you complete a 10-15 rep block
Example:
2 sets = 10-15 repetitions
2-3 minute rest
10-15 repetitions

3
- Try adding some *weight
- Complete 10-15 reps
- Rest: 2-3 minutes
- Repeat 10-15 reps

* Choose a weight that allows you to complete the exercise with good technique, but is still challenging

4
- Using weight
- Complete 10-15 reps
- Rest: 2-3 minutes
- Try to complete 3 sets
- Over time - progress to 4 sets

5
- Increase the weight
- Complete 10-15 reps
- Rest between sets
- Over time: progress 2-4 sets

To complete muscle strengthening exercises safely:

- ✓ Ensure patient is fit to exercise - use the **Quick Check Card - is it safe to exercise today** on page 22.
- ✓ Instruct patients to warm up (approx. 5 minutes) before completing muscle strengthening activities. This can be cycling during dialysis or simply a lower intensity version of the exercises your patient is going to do.
- ✓ Exercises should be completed within the first 2 hours of dialysis.
- ✓ Movements should be smooth and steady – to avoid injury.
- ✓ Instruct patients to breathe out as they lift/push, and breathe in as they relax.
- ✓ Patients should avoid holding their breath. With control, they should breathe in through their nose and out through their mouth.
- ✓ If your patient has a fistula, only exercise the non-fistula arm during dialysis. Remind patients to exercise the fistula arm at home (once needling site has stopped bleeding) to avoid muscle imbalances.
- ✓ If an activity is too difficult suggest doing one arm at a time and build up to using both arms.
- ✓ Patients should always rest for 2-3 minutes between sets. For example do 10-15 repetitions, rest for 2-3 minutes, repeat 10-15 repetitions.
- ✓ Progression from one stage to the next will be different for everyone, if they can complete 10-15 repetitions, 4 sets easily, then it is time to add or increase the weight! If they are struggling to complete 10-15 repetitions using a weight, then reduce the weight and build up slowly.
- ✓ Patients should stop exercise immediately if they have chest pain or feel sick, dizzy or faint.
- ✓ Make sure patients tell you how they are feeling – exhaustion, painful muscles and joints are an indication they are over doing it.
- ✓ The best approach is to start off slowly and build up gradually – they are more likely to succeed!

What Muscle Strengthening Activities?

The following are muscle strengthening activities that can be prescribed during dialysis (videos available on the MOVE website).

Please see the **My Get Active Guide** and the MOVE website: move.bangor.ac.uk to prescribe muscle strengthening activities that can be done at home.

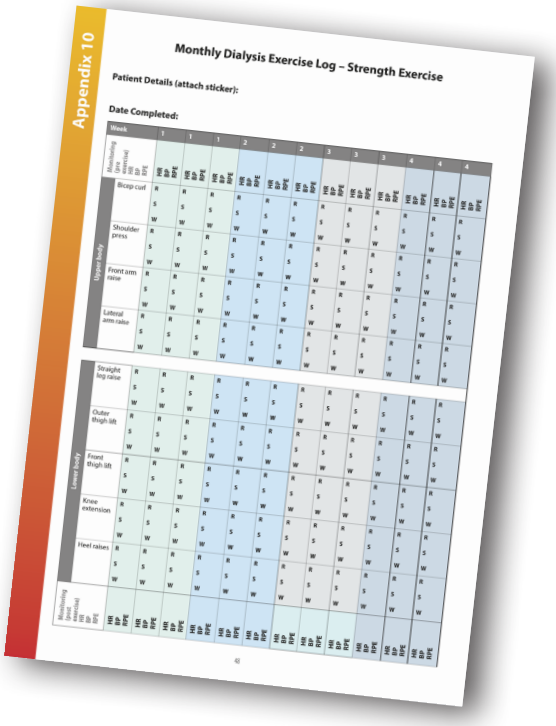
Upper Body Exercises

- ☑ Bicep curl
- ☑ Shoulder press
- ☑ Front arm raise
- ☑ Lateral arm raise

Lower Body Exercises

- ☑ Straight leg raise
- ☑ Outer thigh lift
- ☑ Front thigh lift
- ☑ Knee extension
- ☑ Heel raises

Use the Monthly Dialysis Exercise Log – Strength Exercise (Appendix 10) to record muscle strengthening exercises completed during dialysis.


Appendix 10

Monthly Dialysis Exercise Log – Strength Exercise

Patient Details (attach sticker):

Date Completed:

Upper Body Strengthening Exercises

Bicep curl

- Start with your elbow by your side, palm facing towards ceiling, breathe in
- Breathe out and slowly bend your elbow and raise your hand until it meets your shoulder
- Keep your elbow at your side
- Breathe in and slowly return to the starting position
- Repeat 10-15 times

Note: if you do not have a fistula, repeat on the other arm

Progression Key:

2-4 sets

Increase weight over time

Shoulder press

- Raise your arm so that your elbow is in line with your shoulder, breathe in
- Breathe out slowly and raise your arm above your head, elbow slightly bent
- Breathe in slowly and return your arm to the starting position
- Repeat 10-15 times

Note: if you do not have a fistula, repeat on the other arm

Progression Key:

2-4 sets

Increase weight over time

Front arm raise

- With your arm in front of you, breathe in
- Breathe out whilst you raise your arm in front of you to shoulder height
- Breathe in and lower your arm to the starting position
- Repeat 10-15 times

Note: if you do not have a fistula, repeat on the other arm

Progression Key:

2-4 sets

Increase weight over time

Lateral arm raise

- With your arm by your side, breathe in
- Breathe out slowly and lift your arm to the side until your arm is parallel to the floor
- Elbow should be slightly bent
- Breathe in and slowly return to the starting position
- Repeat 10-15 times

Note: if you do not have a fistula, repeat on the other arm

Progression Key:

2-4 sets

Increase weight over time


Lower Body Strengthening Exercises

Straight leg raise

- Sit on the dialysis chair or bed with your back supported
- Straighten one leg, breathe in
- Breathe out and slowly lift your leg (approx. 30-40°)
- Breathe in and slowly lower your leg to return to the starting position
- Repeat 10-15 times
- Repeat on the other leg

Note: you can bend your other leg for support if needed

Progression Key:

2-4 sets

Increase weight over time


Note:

If you cannot raise your leg to 30°, lift your leg as high as you can and progress to 30° over time

Outer thigh lift

- Sit on the dialysis chair or bed with your back supported
- Straighten one leg, breathe in
- Breathe out and slowly move one leg sideways away from your body
- Breathe in and slowly return your leg to the starting position
- Repeat 10-15 times
- Repeat on the other leg

Note: you can bend your other leg for support if needed

Progression Key:

2-4 sets

Increase weight over time


Front thigh lift

- Sit on the dialysis chair or bed with your back supported
- Place a rolled up towel/cushion/round bolster under one knee, breathe in
- Breathe out and slowly lift your leg (approx. 30-40°)
- Breathe in and slowly return your leg to the starting position
- Repeat 10-15 times
- Repeat on the other leg

Note: you can bend your other leg for support if needed

Progression Key:

2-4 sets

Increase weight over time

Note:

If you cannot raise your leg to 30°, lift your leg as high as you can and progress to 30° over time

Knee extension

- Sit on the side of your chair or bed with your feet flat on the floor
- Hold on to the side of the chair for added support (with your non-fistula arm), breathe in
- Breathe out and slowly straighten one leg, don't lock your knee
- Point your toes towards the ceiling and hold for a few seconds
- Breathe in and slowly lower your leg to the starting position
- Repeat 10-15 times
- Repeat on the other leg

Progression Key:

2-4 sets

Increase weight over time

Heel raises

- Sit on the side of your chair or bed with your feet flat on the floor
- Hold on to the side of the chair for added support (with your non-fistula arm)
- Slowly raise your heels off the ground, hold for a few seconds
- Slowly lower your heels to the ground
- Repeat 10-15 times

Note: could do one leg at a time if needed

Progression Key:

2-4 sets

Add weight over time

(make sure to place weight above knee and not around ankle)

Cool Down

Always finish your exercise session with at least a 5 minute cool down. Just like the warm up, the cool down should be of light intensity (RPE 6-12). A cool down can be a light intensity version of the exercises you have just completed with your patient or you can prescribe the suggested warm up activities on page 14 of the **My Get Active Guide**.

Flexibility Activity

It is important that you prescribe flexibility activities to your patients. Regular stretching will help your patients to move much more freely. This will mean that they will be better able to do their daily activities like washing and dressing, getting in and out of a car, reaching for something, picking up something off the floor, putting their socks on, tying their shoe laces!

In your exercise prescription you should advise patients to do flexibility exercises on **at least two to three days per week. Daily flexibility activities would however be most effective.**

You should recommend that patients hold each stretch for 10-30 seconds (older adults may benefit from holding a stretch for 30-60 seconds).

Flexibility exercises should be repeated 2-4 times to reach a total target of 60 seconds stretching per flexibility exercise. This can be broken down into four 15 second stretches or two 30 second stretches per exercise, depending on their own ability and preference.

For more information and examples of flexibility exercises, signpost your patients to the My Get Active Guide and the MOVE website move.bangor.ac.uk which includes videos of flexibility exercises.

Encourage patients to complete **My Flexibility Exercise Diary** which can be found in the **My Get Active Guide.**

Additional Tips

To help you prescribe a suitable exercise programme for your patient, also consider the following:

- ☑ Use the **My Get Active Guide** and the **MOVE website** (move.bangor.ac.uk) for more exercise options that may be of interest to your patients. A quick Google search may help find additional physical activity options for your patients.
- ☑ Is GP Exercise Referral an option for your patients?
- ☑ Is community physiotherapy an option for your patients?
- ☑ Are there any renal charities/organisations in the local area that hold group activities of interest - walking groups, running clubs etc.

Disclaimer

Please note that patients should be screened and should obtain approval from their doctor before embarking on any physical activity programme.

By using these materials you agree that Bangor University and the authors will not be responsible for any loss or injury sustained in connection with, or as a result of using this guide and the patient booklet.

Follow the safety advice given in this guide to ensure your patients are exercising safely.

Appendices

Screening Patients

Assessment of Patient

Exercise Prescription

AHA/ACSM Joint Position Statement

Use the link below to view the AHA/ACSM Joint Position Statement.

This statement provides recommendations for cardiovascular screening of all individuals before enrolment or participation in activities at health facilities.

http://journals.lww.com/acsm-msse/Fulltext/1998/06000/AHA_ACSM_Joint_Position_Statement__Recommendations.34.aspx

Exercise Eligibility Screening Form

Patient Details (attach sticker):

Date completed:

Exclude patients if they have answered yes to any of the following:	**Delete as appropriate**	**Initial**
Less than 3 months after the initiation of haemodialysis	Yes / No	
Patient in class D (unstable condition) as per AHA/ACSM Joint Position Statement (available here/see Appendix 1): 1) unstable ischemia 2) heart failure that is not compensated 3) uncontrolled arrhythmias 4) severe and symptomatic aortic stenosis 5) hypertrophic cardiomyopathy or cardiomyopathy from recent myocarditis 6) severe pulmonary hypertension 7) other conditions that could be aggravated by exercise (for example, resting systolic blood pressure > 200 mmHg or resting diastolic blood pressure > 110 mmHg; active or suspected myocarditis or pericarditis; suspected or known dissecting aneurysm; thrombophlebitis and recent systemic or pulmonary embolus)	Yes / No	
Infection or fever	Yes / No	
Excessive intradialytic weight gain that severely impacts upon indices of fluid retention, e.g. blood pressure greater than 160/100 mmHg; heart rate above 100 bpm; breathlessness at rest; or signs of peripheral oedema	Yes / No	
If diabetic, blood glucose above 16.7 mmol/L (300 mg/dL) AND patient is in ketosis (fruity breath, rapid breathing or shortness of breath, excessive thirst, frequent urination, stomach pain, nausea, vomiting, fatigue or confusion), is dehydrated, or is feeling unwell	Yes / No	
In individuals taking insulin and/or insulin secretagogues, blood glucose below 5.5 mmol/L (100 mg/dL)	Yes / No	
Symptomatic hyper- or hypotension	Yes / No	
Signs and symptoms of deep vein thrombosis	Yes / No	
Dementia or severe cognitive impairment (as will be unable to give consent)	Yes / No	
Severe psychiatric disorders – except treated conditions such as anxiety and mood disorders	Yes / No	
Pregnancy	Yes / No	
Clinician may wish to refer patient for an exercise stress test, see AHA/ACSM Joint Position Statement for further information (available here/in Appendix 1)		

I am happy for this patient to exercise during dialysis and/exercise outside of the renal unit (delete as appropriate)

Doctors Name:

Doctors Signature:

Date:

Place one copy in patient notes and one copy in patient's exercise folder

Appendix 3

Agreement and Consent Form

Patient Details (attach sticker):

TO BE COMPLETED BY PATIENT

I hereby voluntarily agree to participate in the Exercise Programme

of the _____Renal Unit.

The activities I will engage in are associated with some risk.
This risk is detailed overleaf.

I am aware that no guarantees have been made to me concerning my participation in this programme or the results of such participation.

Patient Name (printed):	
Patient Signature:	
Date:	

TO BE COMPLETED BY HEALTH PROFESSIONAL

I confirm that I have explained the exercise programme to the patient and have obtained a consent form.

I have trained the patient to use the exercise equipment, how to monitor their exercise intensity, and what signs and symptoms to be aware of.

Health Professional's Details:

Name (printed):	
Role:	
Signature:	
Date:	

Place one copy in patient notes and one copy in patient's exercise folder

What are the possible risks of taking part?

Less common (1 to 5% chance):

- Exercise can cause a muscle strain or joint pain
- After exercise blood sugar or blood pressure may drop, making you feel sick and dizzy

Action: *To reduce these risks, trained staff will supervise your exercise sessions and teach you to exercise as safely as possible. The exercise will also be completed in the first half of your dialysis sessions.*

Rare (less than 1% chance):

- Complications associated with blood pressure assessment are very rare but may include bruising, pain of the upper arm, and dizziness

Action: *To reduce these risks, you will be assessed by trained staff.*

Rare but serious (less than 1% chance):

- Exercise can cause a change to your heart function
  - In other populations with chronic disease the risk of death is very low (0.5 per 10,000 exercise tests). Chronic kidney disease patients have also completed at least 3000 hours of exercise training and no serious changes to heart function or fatalities have been reported
  - *The published literature to date suggests that the health benefits derived from regular, individualised and supervised exercise far outweigh any associated potential risks*

Action: *To reduce risks of exercise, we will check your medical history to ensure health risks do not outweigh any benefits. The exercise intensity will be set based on how well you feel at each session. Trained staff will supervise your exercise sessions and teach you to exercise as safely as possible.*

- There is a risk of getting an infection from using equipment as part of the programme

Action: *This risk will be minimised by regular (daily) cleaning and disinfection of all equipment.*

Patient Assessment Form

Patient Details (attach sticker):

Date Completed: _____ **Name of Assessor:**_____

Resting Blood Pressure (BP) and Heart Rate (HR)

	Systolic BP	Diastolic BP	HR
Measure 1			
Measure 2			
Measure 3			

Bloods

Test	Result	Date
Total cholesterol (mmol/L)		
HDL-c (mmol/L)		
LDL-c (mmol/L)		
Triglycerides (mmol/L)		
Glucose (mmol/L)		

☐ **Tick if not completed**

Anthropometric Measures

Height (cm and m)	**cm**	**m**
Weight (kg)		
BMI (kg/m^2)		
BMI Classification		
Waist (cm)	**1.**	**2.**
Hip (cm)	**1.**	**2.**
Average Waist (cm)		**Waist classification:**
Average Hip (cm)		
Waist Hip Ratio (WHR)		**WHR classification:**

Physical Function

Functional Test	Result
Arm Curl (no. completed in 30 seconds)	
60 second Sit to Stand (no. completed in 60 seconds)	

Functional Ability

DASI Score	
Predicted $VO_{2\ peak}$	($ml.kg^{-1}.min^{-1}$)

Falls Risk

Please tick relevant box

Not completed	
Lower risk	
Higher risk	

Goal Evaluation

Patients should set their own goals but there are certain things you can do to help patients achieve their goals.

Note: have a look at the goals set by your patient, which can be found in your patients **My Get Active Guide.**

Things you can do to help (tick each of the below if completed):

- ☐ Check to see if they have made goals. If not, encourage them to do so.
- ☐ Are the goals SMART? If not, perhaps help them to make SMART goals.
- ☐ How important is it for them to achieve their goal? If goals are important, patients are much more likely to change their behaviours.
- ☐ How confident are they that they can achieve their goal? If confidence is low, they are much less likely to succeed. As part of your assessment if you find that confidence is low, ask them why that is, perhaps there are some simple ways that confidence can be increased
  - ★ tell them success stories
  - ★ pair patients together (buddy system)
  - ★ suggest solutions to possible barriers etc.

Support from you and others can help to increase a patient's self-confidence and the chances of a positive behaviour change.

☐ **Tick if not completed**

Exercise Prescription

Use the **Exercise Prescription Form** (Appendix 8) to prescribe exercise during dialysis (cycling and/muscle strengthening exercise) and/exercise outside of the renal unit.

☐ **Tick if not completed**

DASI Questionnaire

Patient Details (attach sticker):

Date Completed:

Can you: **Please circle yes or no**

1. Take care of yourself, that is eat, dress, bathe or use the toilet?	Yes/No
2. Walk indoors, such as around your house?	Yes/No
3. Walk a block or two on level ground?	Yes/No
4. Climb a flight of stairs or walk up a hill?	Yes/No
5. Run a short distance?	Yes/No
6. Do light work around the house like dusting or washing dishes?	Yes/No
7. Do moderate work around the house like vacuuming, sweeping floors, or carrying groceries?	Yes/No
8. Do heavy work around the house like scrubbing floors or lifting or moving heavy furniture?	Yes/No
9. Do yard work like raking leaves, weeding or pushing a lawnmower?	Yes/No
10. Have sexual relations?	Yes/No
11. Participate in moderate recreational activities like golf, bowling, dancing, doubles tennis or throwing a ball?	Yes/No
12. Participate in strenuous sports like swimming, singles tennis, football, basketball or skiing?	Yes/No

Duke Activity Status Index (DASI) score (to be added by member of staff) =

DASI Scoring Form

A score is given if a patient answers 'yes' to a question (to be completed by member of staff).

If answered:	Yes	No
1. Take care of yourself, that is eat, dress, bathe or use the toilet?	2.75	0
2. Walk indoors, such as around your house?	1.75	0
3. Walk a block or two on level ground?	2.75	0
4. Climb a flight of stairs or walk up a hill?	5.50	0
5. Run a short distance?	8.00	0
6. Do light work around the house like dusting or washing dishes?	2.70	0
7. Do moderate work around the house like vacuuming, sweeping floors, or carrying groceries?	3.50	0
8. Do heavy work around the house like scrubbing floors or lifting or moving heavy furniture?	8.00	0
9. Do yard work like raking leaves, weeding or pushing a lawnmower?	4.50	0
10. Have sexual relations?	5.25	0
11. Participate in moderate recreational activities like golf, bowling, dancing, doubles tennis or throwing a ball?	6.00	0
12. Participate in strenuous sports like swimming, singles tennis, football, basketball or skiing?	7.50	0

Note:

Higher DASI scores indicate better functional ability

Sum all the "yes" answers = _____

$VO_{2\,peak}$ = (0.43 x DASI score) + 9.6 = _____

$VO_{2\,peak}$ (cardio fitness) = _____
($ml.kg^{-1}.min^{-1}$)

Falls Risk Identifier Form

The following is a simple tool to assess the falls risk of your patient.

Patient Details (attach sticker):

Date Completed:

Instruction: Score 1 for each question answered as "Yes" and record total.

		Yes	No
1	Is there a history of any fall in the previous year? How assessed? Ask question.		
2	Is the patient on four or more medications per day? How assessed? Number of prescribed medications.		
3	Does the patient have a diagnosis of stroke or Parkinson's? How assessed? Ask question/check medical notes.		
4	Does the patient report any problems with their balance? How assessed? Ask question.		
5	Is the patient unable to rise from a chair of knee height without using their arms? How assessed? Ask patient/assess ability.		
	Total:		
	Level of Risk:		

Adapted from Nandy S et al (2004). Development and preliminary examination of the predictive validity of the Falls Risk Assessment Tool (FRAT) for use in primary care. Journal of Public Health; 26(2); 138-143

Level of Predicted Risk

No. of "Yes" Answers	Falls Risk	Action
< 3	Lower falls risk	Prescribe exercise
3-5	Higher falls risk	Refer to falls prevention services, prescribe seated exercise

Exercise Prescription Form

This is for exercise prescription during dialysis and/exercise outside of the renal unit

Patient Details (attach sticker):

Date Completed:

Name of Prescriber:

Warm Up (5 minutes)

Aerobic Activity

Frequency: _____

Intensity (please circle)**:** **Moderate** **Strong** **Moderate and Strong**

HR: **bpm**

RPE: **(0-100)**

Time: _____

Type: _____

_____

Muscle Strengthening Activity

Frequency: _____

Intensity: _____**Repetitions** _____**Sets** _____ **Weight (if any)**

Type: _____

_____

_____

Cool Down (5 minutes)

Flexibility Activity

Frequency: _____

Intensity: *Stretch to the point of tightness*

Time: _____

Type: _____

_____

_____

Monthly Dialysis Exercise Log – Cycling

Patient Details (attach sticker):

Moderate HR range: _____ **bpm**

Date Completed:

Strong HR range: _____ **bpm**

Date	Resting HR, BP, RPE, Blood Glucose (BG)	Watts (W)	Time (mins)	Session HR, BP, RPE	3 mins Post Exercise HR, BP, RPE	Comments (if any)
Week 1						
1	HR BP RPE BG			HR BP RPE	HR BP RPE	
2	HR BP RPE BG			HR BP RPE	HR BP RPE	
3	HR BP RPE BG			HR BP RPE	HR BP RPE	
Week 2						
1	HR BP RPE BG			HR BP RPE	HR BP RPE	
2	HR BP RPE BG			HR BP RPE	HR BP RPE	
3	HR BP RPE BG			HR BP RPE	HR BP RPE	
Week 3						
1	HR BP RPE BG			HR BP RPE	HR BP RPE	
2	HR BP RPE BG			HR BP RPE	HR BP RPE	
3	HR BP RPE BG			HR BP RPE	HR BP RPE	
Week 4						
1	HR BP RPE BG			HR BP RPE	HR BP RPE	
2	HR BP RPE BG			HR BP RPE	HR BP RPE	
3	HR BP RPE BG			HR BP RPE	HR BP RPE	

Recording Instructions for Cycling during Dialysis

To help you complete the Monthly Dialysis Exercise Log - Cycling, use the following instructions:

☑ Make sure your patients exercise safely, follow the guidelines on page 17, 22, 26 & 27.

☑ Use the guidelines on page 18 & 19 to calculate your patients moderate and strong HR ranges.

☑ At rest, record the following values:

- ★ HR – Heart rate
- ★ BP – Blood pressure
- ★ RPE – Ratings of perceived exertion (0-100)
- ★ BG – blood glucose (if diabetic)

☑ During the exercise session, record the following values:

- ★ Watts
- ★ HR*
- ★ BP
- ★ RPE*
- ★ Time (duration) completed

***moderate intensity exercise is exercise that is:**

- ★ **64-75% HR_{max} AND/OR**
- ★ **RPE 23-30 AND/OR**
- ★ **Talk Test: patient can talk but not sing**

***Remember: HR and RPE should be at least of moderate intensity**

☑ 3 minutes after the exercise session, record the following values:

- ★ HR
- ★ BP
- ★ RPE

Monthly Dialysis Exercise Log – Strength Exercise

Patient Details (attach sticker):

Date Completed:

Week		1	1	1	2	2	2	3	3	3	4	4	4
Monitoring (pre exercise) HR BP RPE		HR BP RPE	HR BP RPE	HR BP RPE	HR BP RPE	HR BP RPE	HR BP RPE	HR BP RPE	HR BP RPE	HR BP RPE	HR BP RPE	HR BP RPE	HR BP RPE
Upper body	Bicep curl	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W
	Shoulder press	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W
	Front arm raise	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W
	Lateral arm raise	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W
Lower body	Straight leg raise	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W
	Outer thigh lift	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W
	Front thigh lift	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W
	Knee extension	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W
	Heel raises	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W	R S W
Monitoring (post exercise) HR BP RPE		HR BP RPE	HR BP RPE	HR BP RPE	HR BP RPE	HR BP RPE	HR BP RPE	HR BP RPE	HR BP RPE	HR BP RPE	HR BP RPE	HR BP RPE	HR BP RPE

Recording Instructions for Muscle Strength Exercises

To help you complete the Monthly Dialysis Exercise Log – Strength Exercise, use the following instructions:

☑ Make sure your patients exercise safely, follow the guidelines on page 29.

☑ Use the guidelines on page 28 to determine how many of each exercise your patient should complete and what weight to use.

☑ At rest, record the following values:

- ★ HR – Heart rate
- ★ BP – Blood pressure
- ★ RPE – Ratings of perceived exertion (0-100)

☑ During the exercise session, record the following values:

- ★ R = number of repetitions completed
- ★ S = number of sets completed
- ★ W = weight used (kg) or N/A if none used
- ★ Strike if exercise not completed

☑ After the exercise session, record the following values:

- ★ HR
- ★ BP
- ★ RPE

Acknowledgements

This publication was produced as part of an impact project funded by the Bangor University ESRC Impact Acceleration Account (awarded to Dr. Jennifer Cooney, Dr. Jamie Macdonald, and Professor Jane Noyes of Bangor University and the Wales Kidney Research Unit).

We would like to thank the renal units (patients and staff) who very kindly took part in the focus groups. Thank you for your time and excellent discussions, your input has been extremely valuable.

A very big thank you goes to the stars of this publication, the participants who very kindly gave up their time to feature in our exercise pictures and videos. Without your contribution this publication would not have been possible.

Finally, thank you to the following companies who have helped us to produce this publication:

Excellent Design, Beaumaris for the graphic design of this publication.

Ben Roberts - benro.tv for the photography, filming and editing of the exercise pictures and videos.

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