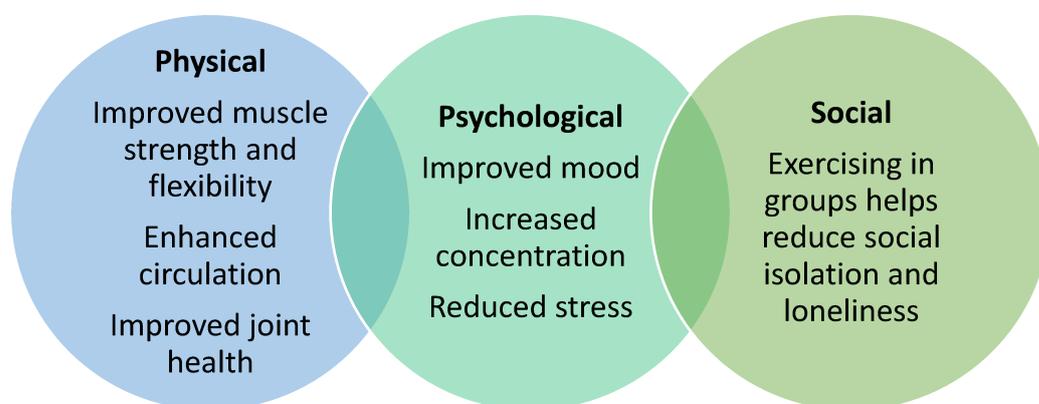


5. Exercise Training

5.1 Background and theory

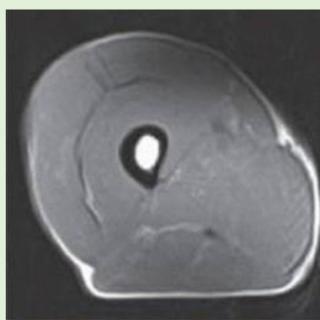
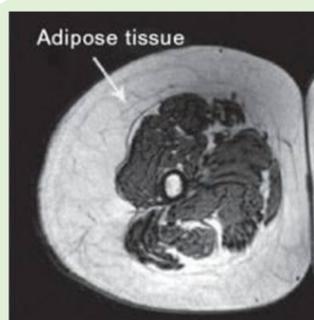
Benefits

Regular physical activity can help improve the way your body functions, and the way you feel. The diagrams below show some examples of physical, psychological (mental), and social benefits from moving.



Exercise is also a key strategy in the management of frailty and can help promote independence in your activities of daily living, such as bathing, dressing, and mobilising.

Even when we reach our 60s, 70s, 80s and 90s we can still gain these benefits from physical activity.



This is an MRI scan showing a cross section of the upper leg from an inactive 70 year old male (left) and an active 70 year old male (right). Can you notice the differences between the amount of muscle, bone and fat (adipose tissue) in each picture?

The FITT Principle

A good way to start designing an exercise programme is to consider the acronym **F I T T**

Frequency How often do you exercise per week?

Intensity How much effort should you put in e.g., light, moderate, or vigorous?

Time How long should we exercise for?

Type What type of exercise should we do e.g., cardiovascular, balance, strength?

For instance, government guidelines suggest we complete 30 minutes of cardiovascular exercise (e.g., walking, cycling, dancing) to get us breathing a bit harder (moderate intensity) 5 times per week. For most people this might be a daunting task. That is why the next concept is important when we are thinking about physical activity to improve health; individualisation.



Individualisation

We need to tailor our movements and the FITT principle to **suit our own needs**. Beginning with 10 minutes of light activity every other day is a great start. **It is all about you**. Starting off at a comfortable volume of activity that is both **enjoyable** and beneficial is key.

5.2. Exercise Content

We can now apply the FITT principle to the exercise programme you will be doing as a part of the Frail2Fit project.

The Frail2Fit programme focuses on improving your **strength** with evidence based seated exercises. Strength is the amount of force your muscles can exert, or their ability to overcome resistance, such as picking up a shopping bag, or digging in the garden.

Frequency: 1-3 classes per week

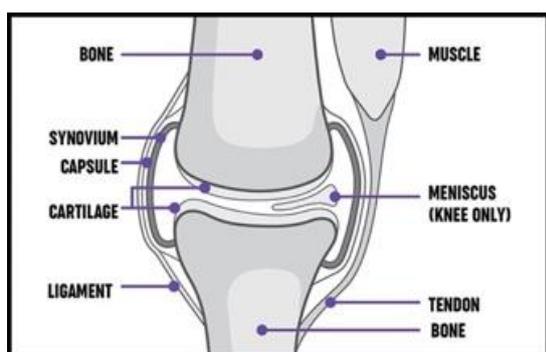
Intensity: Light – Moderate

Time: 20 - 30 minutes

Type: Strength



There are 14 seated exercises that focus on mobilising and strengthening your main muscle groups. The exercise class is split into a warm up, the main strengthening component and a cool down.



Why do we need to warm up?

A low intensity warm up gradually increases the body's temperature, heart rate and blood flow, which helps prevent muscles from straining. Warming up also helps to lubricate the joints through the release of synovial fluid. This is like the joints natural oil.

Why do we need to cool down?

The cool down is done at the end of the class to gradually return the heart rate to within resting levels. The cool down is also a good opportunity to stretch out the shortened muscles while the muscles are warm from exercise. Stretching can help to improve flexibility.

Resistance Band Exercise

Resistance bands are large elastic bands that can help to strengthen different areas of your body. They are easy to use and can be added into your weekly exercise to help challenge your muscles safely. There are different band tensions available to suit you:



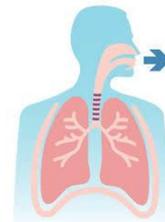
Muscle-strengthening exercise, such as using resistance bands, will make your muscles feel warmer and you may feel you get a 'wobble', or 'shake' during the activity. It is normal for your muscles to feel a little achy the next day; the muscles will feel like they have been used. If the exercises are too difficult using a band, then you can complete them without.

Seated Exercise Diagrams

Warm Up

1. Deep Relaxing Breaths

Take 3 deep breaths in and out to help invigorate and energise your body.



2. Heel Lifts & Toe Lifts

Lift both heels off the floor.
Now lift both toes off the floor.
Alternate between heel and toe lifts 10 times.



3. Shoulder Rolls

Roll your shoulders forwards slowly 5 times. Then roll your shoulders backwards slowly 5 times. This will help warm the shoulder joints and muscles.



4. Ankle Rotations

Lift and circle one foot round 5 times in one direction then 5 times in the opposite direction. Repeat on the other foot. This will help loosen the ankle joint.



5. Wrist Rotations & Finger Flicks

Rotate your wrists round 5 times in one direction then 5 times in the opposite direction. Next, scrunch your hands into a fist and then open them out and stretch the fingers forward 10 times. These exercises will help with wrist, hand and finger movement.



6. Overhead Arm Stretch

Sit tall in your chair. Lift your arms out to the side and stretch them slowly above your head. Aim to complete 4-8 times. Move to where you feel comfortable. This exercise stretches through the upper body and warms into the shoulder joints.



Main Strength Component

7. Bicep Curl (with band)

Place the band under both feet, holding the band firmly in both hands. Place your elbows against your sides. Turn your palms up. Now curl your arms up towards you. Complete 4-8 times, slow and controlled.



8. Chest Press (with band)

Sit tall, place the band behind your back and under your arm pits. Now press your arms forward slowly stretching out the band. Repeat 4-8 times. This exercise is good for your arm strength.



9. Single Leg Press (with band)

Sit tall at the back of your chair. Place the band under one foot. Now, lift the foot off the floor with your knee bent. Press your foot into the band straightening your leg forwards slowly. Pause with your leg straight, then control the movement back into a knee bend. Complete 4-8 times, then

repeat on the other leg. Slow and controlled movements. This exercise is great for strengthening your legs, helping with standing and walking.



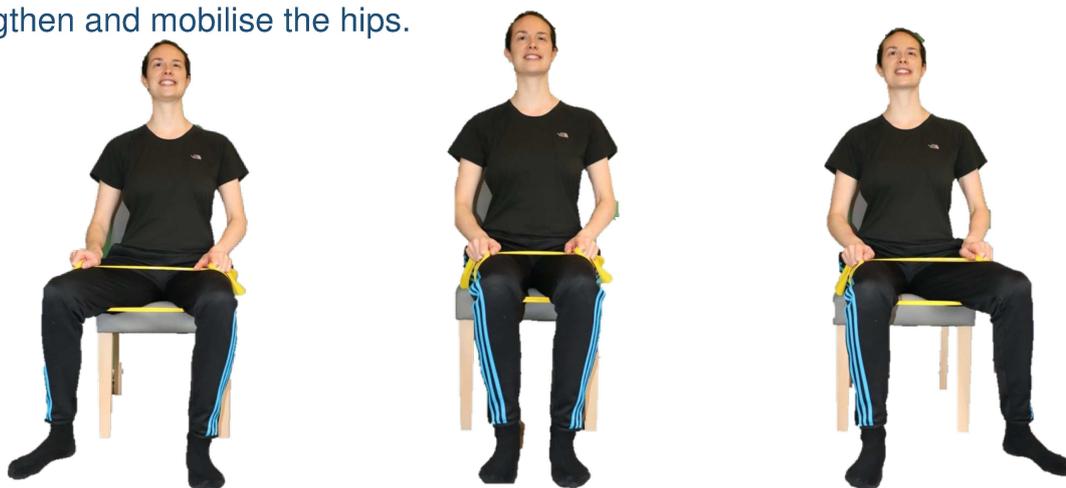
10. Marching & Punches (with band)

March your feet and lift your knees, alternating sides slowly. For an extra challenge place the band behind your back and under your arm pits. Now, alternate punching arms, stretching the band forwards. Try lifting the opposite knee to the opposite arm. Repeat 4-8 times at a comfortable pace and range of movement for you.



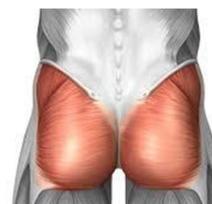
11. Side Steps (with band)

Wrap the band around the tops of your thighs. Lift one leg out to the side against the band. Pause with your leg out to the side then slowly lift the leg back to centre. Repeat the opposite side. Aim to complete 4-8 times, alternating at a slow controlled speed. This exercise is great to strengthen and mobilise the hips.



12. Bottom Squeezes

Clench your bottom cheeks and hold for 3 seconds. Release and repeat 4-8 times. This exercise helps to improve the strength of your gluteals (bottom muscles), which are important for standing and walking.



Cool Down

13. Hamstring Stretch

Sit towards the front of your chair. Straighten one leg in front of you and rest your heel on the floor. Lift your toes and gently lean forward into the stretch. Hold the stretch for 20 seconds. This exercise improves the flexibility into the back of the legs.



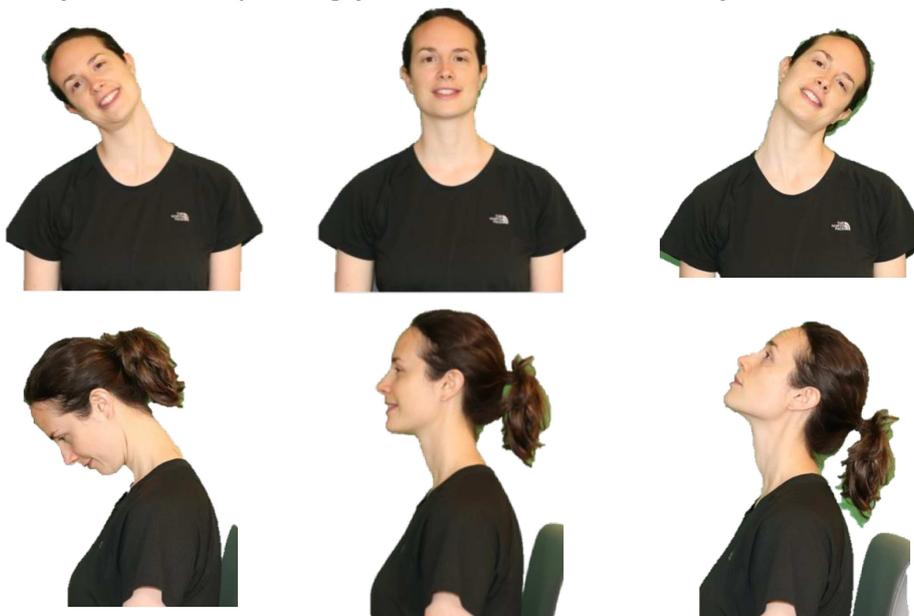
14. Chest Stretch

Sit towards the front of your chair. Reach back with your hands to touch the back of your chair. Stick your chest out and squeeze your shoulder blades together. Hold the stretch for 20 seconds. Remember to breathe. This exercise is great to prevent hunched shoulders.



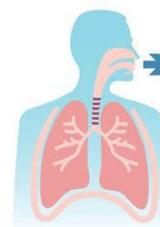
15. Neck Stretches

Slowly tilt your head over to one side and hold for 10 seconds. Bring your head back to the centre and then repeat the opposite side. Next, tilt your head forwards bringing your chin towards your chest and hold. Slowly bring the head back to centre and then slowly lift your head up tilting your chin towards the sky.



16. Deep Relaxing Breaths

Take 3 deep breaths in and out to help invigorate and relax your body.



Progression

We need to be exposed to greater stress for changes to occur in the body. When you have reached a plateau, where you are able to complete the exercises easily, then the intensity or duration can be increased gradually to bring about further changes.

For instance, we can progress our strength exercises by increasing the amount of repetitions we complete on each exercise, or we can add in resistance by using weights, or resistance bands.

Aim to progress to:

- 3 sets of 8 repetitions
- Weights (start with 0.5-1.5kg)
- Resistance band (start with easy tension)



STOP the exercise or reduce intensity/duration if there are signs of over exertion (e.g., muscle soreness lasting longer than 2 days).

Important Resistance Band Considerations

- Perform the exercises without the resistance band until you are comfortable.
- Perform all exercises in a slow and controlled manner, controlling the movement in both directions, and not allowing the band to 'ping'.
- The band should be tight enough to get the muscle 'firing' properly. Holding the band further towards the ends will make the movement easier. We are aiming to feel mild fatigue in the muscles after using the band.
- Try to breathe normally. If it helps you can inhale before starting a repetition and exhale on the contraction.
- Consider your body alignment – good tall seated position with your joints comfortably in alignment.

Resistance Band Safety Tips

1. Do not stretch the band too far
2. Never let go of the band while under tension (i.e., stretched out)
3. Inspect bands before use (they can break down over time due to normal 'wear and tear')



Looking After Your Band



1. Clean bands by wiping with a damp cloth.
2. Do not use soap or any cleaning products to clean bands as these can deteriorate the strength of the band.
3. Avoid storing bands near direct sunlight.
4. Keep stored bands away from heat sources.
5. Bands should not be stored outside or in cold environments.

