

**Physiotherapy**

**Department of Rehabilitation**

**Exercise for prevention of cardiovascular diseases and obesity**

**Physical inactivity or lack of exercise** is one of the risk factors for cardiovascular diseases and obesity.

**Benefits of exercise**

- Controls or reduces body weight.
- Improves heart and lung function.
- Boosts energy levels and improves mental health.
- Improves muscle strength, endurance and flexibility.
- Promotes better sleep and basal metabolic rate
- Decreases the cardiac risk factors i.e. High blood Pressure, High Cholesterol, Diabetes and Obesity.

**Exercise guidelines (Taken from American College of Sports Medicine 2009 and Health Promotion Board 2016)**

Target	Frequency (Days/ week)	Intensity	Type	Time (min/ week)
Weight Loss	5 – 7	Moderate	Aerobic exercise	>250
Weight Maintenance after loss				>200
Prevent Weight Gain				150 – 250
For a Healthy Heart & Maintaining of Good Health				Min 150

Target	Frequency (Days/ week)	Intensity	Type	Time (repetitions)
Resistance Training	2 – 3	Moderate	Free weights, machines, therabands	2 sets per exercise 8 – 10 major muscles

**Exercise recommendations**

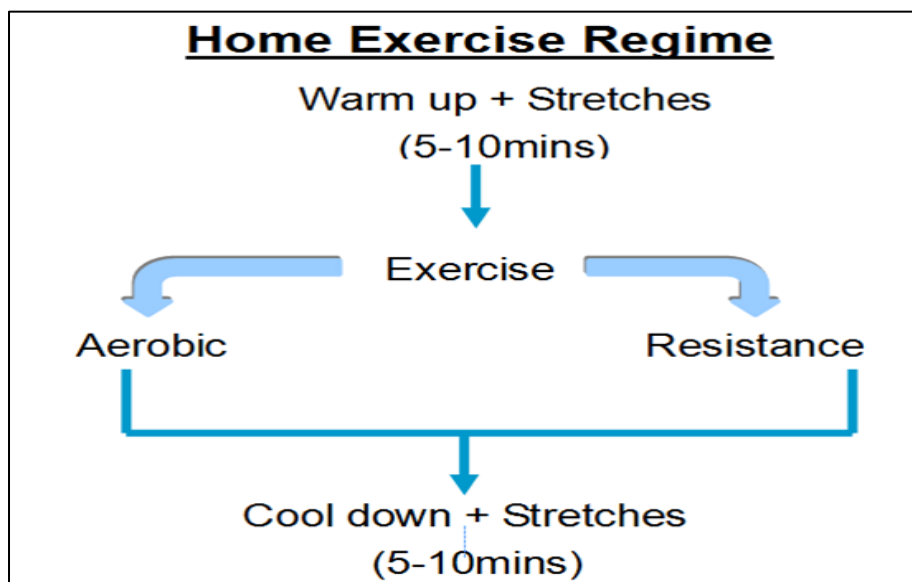
**Starting your exercise programme**

- If you have not exercised or have not been active in a long time, start off slowly to prevent injuries.
- Always start with low intensity exercises and go slow. Below are some suggested activities:

<p><b>If you are <u>inactive</u></b> <b>(rarely do activities)</b></p>	<ul style="list-style-type: none"> <li>✓ Increase daily physical activities</li> <li>✓ Take the stairs instead of the elevator</li> <li>✓ Stretch while sitting at your desk</li> <li>✓ March on the spot</li> <li>✓ Walk whenever you can</li> </ul>
<p><b>If you are <u>sporadic</u></b> <b>(active at times but not regularly)</b></p>	<ul style="list-style-type: none"> <li>✓ Aim to be consistent in aerobic exercise</li> <li>✓ Find leisure activities you enjoy</li> <li>✓ Set realistic goals to progress the frequency of your exercise</li> </ul>
<p><b>If you are <u>consistent</u></b> <b>(regular aerobic exercise at least 4 days per</b></p>	<ul style="list-style-type: none"> <li>✓ Supplement your usual routine with different leisure or recreational activities</li> <li>✓ Aim to increase the fun factor in exercise</li> </ul>

**Aerobic and resistance exercises for a balanced workout**


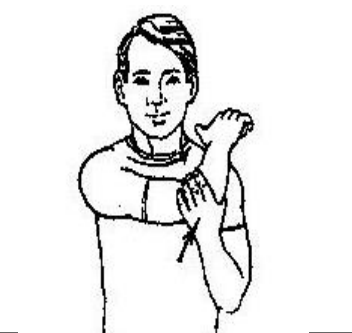
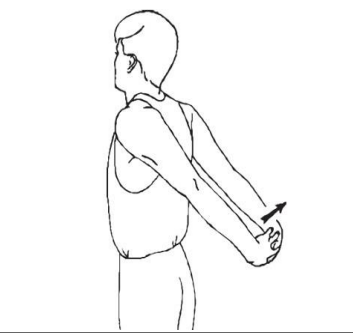

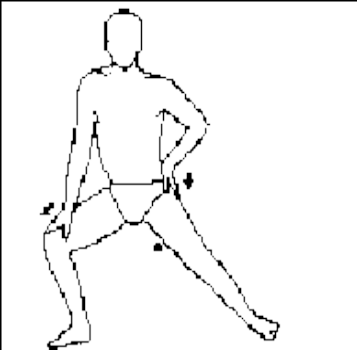

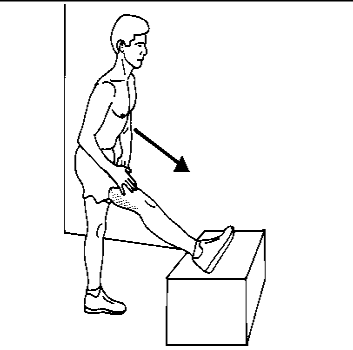

A well-structured exercise programme includes the following:



**Warm up, stretching and cool down routine**

**Warm up and cool down routine includes:**

- 5 minutes of slow walking to improve circulation → 5-10 minutes of stretching → start resistance or aerobic exercises.
- Hold each stretch for 10-15 seconds, without bouncing to avoid hurting joints and muscles.
- Perform each stretch 5 times to the point of mild tension (No Pain) for joint flexibility.
- Do not hold your breath while stretching.

			
<b>Neck</b>	<b>Shoulder</b>	<b>Chest/ Upper Back</b>	<b>Trunk</b>
Tilt head sideways, first one side then the other. Gently pull with your hand to increase the tilt/stretch.	Cross one arm horizontally over your chest, grasping the elbow with your hand. Pull your upper arm in toward your chest.	Interlace fingers behind back. Stretch arms upwards and backwards.	Stand with hands on hips and feet shoulder-width apart. Bend sideways at hip. Avoid twisting movements of the trunk.
			
<b>Inner thigh</b>	<b>Quadriceps</b>	<b>Hamstring</b>	<b>Calf</b>
Stand with both feet facing forward, double shoulder-width apart. Take your bodyweight across to one side. Avoid leaning forward. Increase the stretch by sliding your foot out to the side.	Stand holding the wall/ table. Pull your heel to your buttock. Have a slight bend in the supporting leg.	Elevate heel on a chair or step. Ensure knee is straight. Bend forward from hips toward foot of straight leg until you feel slight stretch at back of thigh.	Stand slightly away from wall and lean on it with forearms. Place right foot in front, leg bent, left leg straight behind. Slowly move hips forward until you feel stretch in calf of left leg. Keep heels flat on ground and toes pointed ahead.

### Safety and monitoring

**INTENSITY MONITORING:** Monitoring the intensity of your exercise can be done via the following 3 ways.

Select at least one subjective and / or objective way to monitor your exercise intensity.

**SUBJECTIVE 1. Talk Test:** • You should ALWAYS be able to talk during exercise.

- You should be able to count to 10 without stopping more than twice

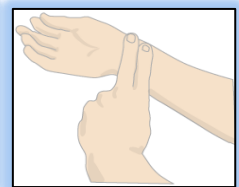
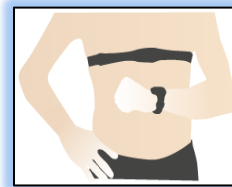
**SUBJECTIVE 2. Self-rating level of exertion: BORG Rate of Perceived Exertion Scale (RPE)**

RPE			% MHR
6	Very, Very light	Little or no effort	50 - 60
7		Warm up recovery	
8	Very light		
9			
10	Fairly light	Breathing Slightly deeper but comfortable. Able to converse	60 - 70
11			
12			
13	Somewhat hard	Breathing harder, more difficult to hold conversation	70 - 80
14			
15	Hard	Breathing even harder slight discomfort	80 - 90
16			
17	Very hard	Deep and forceful exhalation, almost unable to talk	90 - 100
18			
19	Very <u>very</u> hard		
20	Maximum		

**OBJECTIVE 3. Target Heart Rate (THR):** Heart rate can be measured via manually counting your heart rate **OR** wearing a heart rate watch or fitness tracker as shown below.

THR = 60 to 80% of MHR (MHR = maximum heart rate = 220– age).

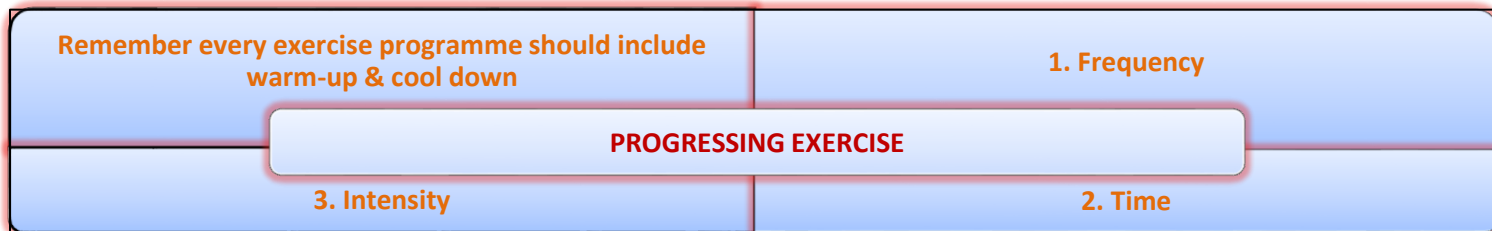
- MHR = 220 - \_\_\_\_ = \_\_\_\_.
- \_\_\_\_ x 60% = \_\_\_\_, \_\_\_\_ x 80% = \_\_\_\_.
- Your THR is \_\_\_\_ to \_\_\_\_ bpm.



• To measure your own heart rate manually:

1. Face one hand up towards the ceiling and apply the opposite index and middle finger over the thumb side of your wrist (as shown in the above diagram).
2. Once you have located your pulse, count the number of beats in one minute.
3. You should take your heart rate at rest before your exercise (resting heart rate) and at the end of your exercise.

**Progression of exercise**



**NEVER increase all 3 aspects at once!**

<p style="text-align: center;"><b>GENERAL</b></p> <ul style="list-style-type: none"> <li>- Find a goal that motivates you</li> <li>- Dress appropriately with proper footwear (no slippers)             <ul style="list-style-type: none"> <li>- Have your meals 1½ hour prior to exercise</li> </ul> </li> <li>- Medications to be taken at least ½ hour prior to exercise             <ul style="list-style-type: none"> <li>- Drink enough water during the course of exercise</li> <li>- Avoid exercise if you are unwell</li> </ul> </li> </ul>	<p style="text-align: center;"><b>CARDIAC DISEASE</b></p> <ul style="list-style-type: none"> <li>- It is essential to seek approval from your doctor before starting any new exercise regimen</li> </ul> <p style="text-align: center;"><b>Monitor Signs and Symptoms of Heart attack :</b></p> <ul style="list-style-type: none"> <li>Chest pain /tightness</li> <li>Breathlessness</li> <li>Cold Sweat</li> <li>Dizziness</li> <li>Nausea / Vomiting</li> </ul> <ul style="list-style-type: none"> <li>- If you have heart failure, adhere to your fluid restriction (as per your doctor’s advice)</li> </ul>
<p><b>GENERAL PRACTICALITIES AND TIPS FOR EXERCISE</b></p>	
<p style="text-align: center;"><b>DIABETES</b></p> <ul style="list-style-type: none"> <li>- Check your blood sugar level before and after exercise.</li> <li>- Do not exercise if your blood sugar is &gt;16.7 mmol/l.</li> <li>- Have a light snack before exercise if your blood sugar is &lt;5.5mmol/l</li> <li>- It is essential to have emergency carbohydrates (e.g. sweets/ juice) on standby</li> </ul> <p style="text-align: center;"><b>Signs And Symptoms Of Low Blood Sugar :</b></p> <ul style="list-style-type: none"> <li>Sweating / Clammy Skin</li> <li>Dizziness / Excessive hunger/ Fatigue</li> </ul>	<p style="text-align: center;"><b>OBESITY</b></p> <ul style="list-style-type: none"> <li>- Aim for a loss of 1kg per week</li> <li>- Adhere to the diet plan, as prescribed by your dietician</li> <li>- For individuals who are at risk of orthopedic injuries low impact activities like swimming or cycling are advisable             <ul style="list-style-type: none"> <li>- Get an exercise partner or join an exercise class</li> <li>- Set aside fixed/routine times for your exercise</li> </ul> </li> </ul>

**Disclaimer:**

The information provided in this publication is meant purely for educational purposes and may not be used as a substitute for medical diagnosis or treatment. You should seek the advice of your doctor or a qualified healthcare provider before starting any treatment or if you have any questions related to your health, physical fitness or medical conditions.