prTelerehab

# EXERCISE TRAINING PROTOCOL

A standardised exercise training prescription and progression protocol is employed during telerehabilitation. This protocol encompasses both endurance training and strength training. At least 30 minutes of lower limb endurance exercise training is prescribed each session, which can be completed in shorter intervals. The target 30 minutes of endurance training is achieved before progression of intensity. Where participants are able to complete more than 30 minutes of endurance training, this is encouraged. Details of endurance training prescription and progression are summarised in the below table.

Resistance training for the upper and lower limbs is prescribed using functional activities at an intensity that enabled achievement of 8–12 repetitions for three sets of each exercise. A minimum of four exercises, two each for the upper limb (e.g. wall push-ups, upright row, shoulder press) and lower limb (e.g. squats, sit-to-stand, step-ups), are prescribed. Once able to perform three sets of 12 repetitions comfortably, weight is increased. Strength training makes use of appropriate and easily available household items (e.g. tins of soup or bags of rice) to substitute for free weights. All participants are encouraged to perform an additional three unsupervised exercise sessions each week, which are documented in a home diary and reviewed weekly by the supervising clinician.

prTelerehab

**Summary of endurance training prescription and progression***

| | Training mode | Time | Intensity | Progression | Variations |
|---|---|---|---|---|---|
| **Centre-based rehabilitation** | Walking training | Minimum 15 mins | Initial speed 70-80% of maximum speed achieved in baseline 6MWT.<br><br>This speed is maintained for Week 1. | Each week speed is increased by 0.25km/hr where initial speed ≤ less than 3km/hr; or 0.5km/hr where initial speed >3km/hr.<br><br>Once training at 5km/hr, speed is reduced to 4.5km/hr and incline is introduced and increased weekly. | If unable to progress to a walking speed of 5km/hr due to leg length or musculoskeletal reasons, incline may be introduced earlier. |
| | Cycle training | Minimum 15 mins | Set at the work rate (watts) corresponding to 60% of the peak $VO_2$ achieved on CPET (Borg 3-4).(4) | Progressed each week by 5-10% of the initial workload as tolerated; aiming to maintain a dyspnoea score of BORG 3-4.(5) | Progression increments can be increased by 15% if target Borg intensity is not reached.<br><br>Interval training may be used for participants with severe deconditioning, dyspnoea, desaturation or claudication pain. i.e. Target intensity for 3-5 mins, interspersed with rest periods of 2-3 mins. Only exercise periods count towards the total exercise time. |
| **Telerehabilitation** | Cycle training | Minimum 30 mins; usually in 2x15 min blocks | Set at the work rate (watts) corresponding to 60% of the peak $VO_2$ achieved on CPET (Borg 3-4).(4) | Progressed each week by 5-10% of the initial workload as tolerated; aiming to maintain a dyspnoea score of BORG 3-4.(5) | Progression increments can be increased by 15% if target Borg intensity is not reached.<br><br>Interval training may be used for participants with severe deconditioning, dyspnoea, desaturation or claudication pain. i.e. Target intensity for 3-5 mins, interspersed with rest periods of 2-3 mins. Only exercise periods count towards the total exercise time. |

LEGEND: Peak $VO_2$ = peak oxygen consumption; CPET = cardiopulmonary exercise test *Table adapted from Cox et al Thorax 2022;77:643-651.

REFs: 4. Chodzko-Zajko WJ, et al Med Sci Sports Exerc 2009; 41: 1510-1530. 5. Gloeckl R, et al. European Respiratory Review 2013; 22: 178-186.