Appendix 1 – The Otago exercises program

The training program was provided following guidelines of the Geriatric Medicine Department, The Royal Bournemouth and Christchurch Hospital NHS Foundation Trust (Fairmile Road, Christchurch, UK)

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| **Warm-up exercises.**  Always begin with a warm-up to prepare your body for the main exercises. | | |
|  | - Chair March   * Sit tall on the front third of the chair seat, away from the chair back * Hold the sides of the chair * Alternately lift your feet and place them down with control * Build to a rhythm that is comfortable for you * Continue for 30 seconds. | |
|  | - Arm swings   * Sit tall away from the chair back * Place your feet flat on the floor below you knees * Bend your elbows and swing your arms from the shoulder * Build to a rhythm that is comfortable for you * Continue for 30 seconds. | |
|  | - Head movements   * Sit tall, away from the back of chair * Turn your head slowly to the left * Return to start position and turn to the right side * Repeat 5 times. | |
|  | - Neck movements   * Sit tall and place one hand on your chin * Slowly guide chin straight back with your hand (not bending the neck back or forwards) * Relax and repeat 5 times. | |
|  | - Back extension   * Sit tall, on front third of chair, way form back of chair * Place hands on bottom just below small of back * Lift chest and gently arch backward * Repeat 5 times. | |
|  | - Trunk movements   * Sit tall with your feet flat on the floor, hip-width apart * Fold your arms across your chest * Check your posture, with control, turn your upper body and head towards you left * Repeat on the opposite side * Repeat 5 times. | |
|  | - Ankle movements   * Sit tall away from the back of the chair * Hold the sides of the chair * Place the hell of one foot on the floor, then lift and put the toe down in the same spot * Repeat 5 times on each leg. | |
|  | - Back of thigh stretch   * Sit tall with your bottom on the front third of the chair * Place your left foot flat on the floor, then straighten your right leg out in front with your heel on the floor, foot relaxed * Place both hands on the left thigh, then sit tall, lean forward and upward until you feel the stretch in the back of your right thigh * Hold for 8 seconds * Repeat on your other leg. | |
|  | - Calf Stretch   * Sit tall with your bottom to the front third of the chair * Hold the sides of the chair * Place your left foot flat on the floor then straighten your right leg out in front with your heel on the floor * Pull the toes up towards the shin until you feel the stretch in the back of your calf * Hold for 8 seconds * Repeat on your other leg. | |
| **Exercise to help improve your bone and muscle strength**  Build up to 10 repetitions of each exercise on each leg as you progress then build up to 2 or more sets of 10. | |
|  | - Front knee strengthening   * You can do this without a weight * Strap the weight around your ankle, if you were issued with a weight * Sit tall with your back well supported * Slowly straighten the leg out in front of you for a court of 2 * Lower the leg for a count of 4 * Rest and repeat, build up to 10 times or more as you progress * Repeat on the other leg. | |
|  | - Back knee strengthening   * Strap the ankle weight around you ankle (if you were issued with a weight) you can do this without a weight * Stand tall with both hands on the table or kitchen worktop * Ben the knee, slowly bringing the foot towards your bottom, keeping your knee beside the other knee * Lower the leg with control * Place your weight evenly over both feet to rest * Repeat building up to 10 times or more as you progress * Repeat on the other leg. | |
|  | - Side hip strengthening   * Strap the ankle weight around your ankle (if you were issued with a weight) you can do this without a weight * Stand tall beside the table, or kitchen worktop keeping one or two hands on the table for support * Keep the exercising leg straight and the toes facing forward * Slowly lift the leg out to the side * Slowly lower the leg with control * Place your body weight evenly over both feet to rest repeat 10 times on each leg take weights off. | |
|  | - Calf raises   * Stand tall facing the table, keeping one or both hands on the table support * Look straight ahead * Place your feet hip-width apart * Slowly lift your heels and come up onto your toes * Slowly lower you heels to the ground with control * Repeat this exercises 10 to 20 times. | |
|  | - Toe raises   * Stand tall facing the table, keeping one or two hands on the table for support * Look straight ahead * Place your feet hip-width apart * Slowly lift your toes and come onto your heels (remain tall not leaning backwards, bottom tucked in) * Slowly lower your toes to the group with control * Repeat this exercises 10 to 20 times. | |
| **Exercises to help improve your balance**  Do these holding on with both hands for support and as you progress reduce the support to holding with one hand, support with fingertips etc. | |
|  | - Knee bends   * Stand tall with both hands on the table, feet hip-width apart * Take bottom backwards and bend knees as if to sit down, make sure heels don-t lift and knees are above toes * Slowly push through both feet to stand up again * Repeat 5 times initially and build up to 10 times. | |
|  | - Heel-toe standing   * Stand tall beside the table or worktop * Look straight ahead * Lift your heels and come up onto your toes * Slowly walk 10 steps on your toes * Bing the back foot beside the front foot and lower the heels to the ground * Turn around and walk 10 steps on your toes in the opposite direction. | |
|  | - Heel-toe standing   * Stand tall beside the table or worktop * Look straight ahead * Place one foot directly in front of the other foot so that the feet form a straight line * Hold this position for 10 seconds * Now bring the back foot directly in front of the other foot * Hold this position for 10 seconds. | |
|  | - Heel toes walking   * Stand tall beside the table or worktop * Look straight ahead * Place one foot directly in front of the other so that the feet form a straight line and repeat for 10 steps * Turn around and walk 10 steps in the opposite direction. | |
|  | - One leg stand   * Stand tall beside the table or worktop * Look straight ahead * Balance on one leg, keep the knees clos3e together * Hold this position for 10 seconds place the foot down and repeat on the other leg. | |
|  | - Side walk   * Stand tall holding the chair or kitchen worktop with both hands, feet hip-width apart (when confident, try holding with only one hand) * Take a step to the right and then to the left * Continue for 30 seconds * Now try to take 2 steps to the right and then two to the left continue for 30 seconds * Alternatively stand at kitchen surface and take 5 small steps to the side and repeat in opposite direction * Build up to 10 steps in each direction. | |
|  | - Heel walking   * Stand tall beside the table or worktop * Lift your toes and come onto your heels * Look straight ahead, bottom tucked in * Walk 10 steps forward on your heels * Bring the back foot beside the front foot and lower the toes to the ground with control * Turn around and walk 10 steps on your heels in the opposite direction. | |
|  | - Sit to stand   * Sit tall, move bottom to front of the chair * Place your feet slightly behind your knees, feet hip-width apart * Lean slightly forwards, look straight ahead * Stand up (using your hands on the chair for support if needed. Progress to no hands over time) * Step back until your legs touch the chair then stand tall, lean forward bend your knees and slowly lower your bottom back into the chair * Repeat 10 times. | | | |
|  | - Backwards walking   * Stand tall beside the table or worktop * Look straight ahead * Place feet hip-width apart * Slowly walk backwards 10 steps * Turn around and walk 10 steps backwards in the opposite direction. | |
|  | - Heel toes walking backwards   * Stand tall beside the table or worktop * Look straight ahead * Place one foot directly behind the other foot so that the feet form a straight line * Place the front foot directly behind * Repeat for 10 more steps * Turn around and walk 10 steps in the opposite direction. | |
|  | - Walking and turning around   * Stand tall between two chairs placed body width apart * Walk at a regular pace to circle on chair in a clockwise direction and return to the starting position * Walk in a circle around the second chair in a anti-clockwise direction and return to the starting position * The whole movement should form a figure of 8 * Begin with one and build to 2 figures of 8. | |
| \\bournemouth.ac.uk\data\staff\home\fferraro\Profile\Desktop\step.PNG | - Stair walking as part of your exercises   * Ask your exercise instructor, physiotherapist or falls prevention practitioner if you should be doing stair walking as exercise * Hold on to the hand-rail for this exercise * Go up and down the stair for 10 times. | |
| **Cool-down session**  Cool-down exercises help you to relax and recover from exercise and maintain flexibility | | | |
|  | - Back of thigh stretch   * Move your bottom to the front of the chair * Place your left foot flat on the floor, then straighten your right leg out in front with your heel on the floor, foot relaxed * Place both hands on the left thigh, then sit tall * Lean forwards and upwards until your feel the stretch in the back of your left thigh * Hold for 10 to 20 seconds, with a straight back * Repeat 1 to 3 times * Repeat to your other leg. | |
|  | - Calf stretches   * Move your bottom to the front of the chair * Hold the sides of the chair * Place your left foot flat on the floor then straighten your right leg out in front with your heel on the floor * Pull the toes up towards the shin until you feel the stretch in the back of your right calf * Hold for 12 to 20 seconds * Repeat 1 to 3 times * Repeat on your other leg. | |