

## Dynamic Balance (FaME and OTAGO) Knee Bends with Support & without Support

### Purpose

Tell the person this exercise will improve their balance and reduce their risk of falls and fractures.

### OTAGO Teaching Instructions

- The person should be standing up tall facing the bench with both hands on the bench
- Feet should be placed hip width apart, toes facing forwards
- Bend the knees as if to sit down
- Ensure the knees are above the toes
- Ensure the heels do not lift throughout the movement

### Additional teaching instructions

- Let the person know the number of repetitions/sets/seconds they will be doing
- Let the person know this exercise is low level in terms of balance challenge
- Let the person know that as this is a balance exercise, they may, at first, feel unsteady and that taking a step to recover balance is normal
- Start with small movements and maximum support
- Ask the person to imagine they are going to sit down and stand up from a chair repeatedly
- Check posture and ensure breathing is even as this will help to reduce tension, which may interfere with balance

BEGIN WITH 1 SET OF 5 REPETITIONS AND BUILD TO 10 REPETITIONS

### Additional teaching points

- Keep the chest lifted and ensure they are bending from the hips not the the waist
- Take the bottom backwards as the knees are bending
- Keep looking straight ahead throughout the movement
- Ensure the knees do not fall inwards



- Ensure the bottom stays above the level of the knees to prevent strain on the knees and back
- Ensure the knees stay above the feet throughout
- Avoid locking out the knees on standing
- Ensure the spine is neutral and the tummy muscles are pulled in
- Perform the movement slowly and with control
- Feel the muscles work in the thighs and buttocks

### Potential problems

- The person takes the chest towards the knees by leaning forwards from the waist
- The person's hips go forwards rather than back causing the knees to go forwards beyond the toes placing undue stress on the knee joints
- The person's knees fall inwards during movement
- The person's bottom drops lower than knee level placing undue stress on the knee joints
- On standing, the person comes up too quickly and locks out the knees

### **Solutions**

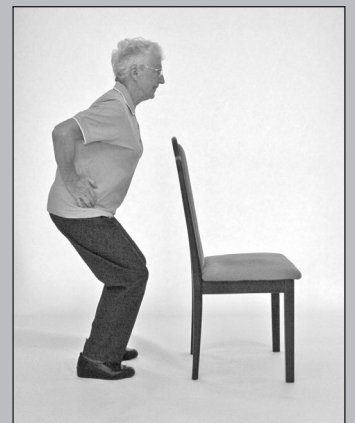
- Emphasise keeping the back upright and looking forwards
- Imagine they are sitting down into a chair and to try to keep their knees above their toes throughout
- Keep the knees hip width apart and try to imagine there is a ball between their knees
- Remind them to stop lowering before they reach a right-angle at the knee
- Reinforce the need to perform the upward movement slowly and with control

### **OEP Progression**

- From 10 reps with support progress to 10 reps without support

### **FaME/LLT Additional Progression Approaches**

- With each of the following progressions begin with 5 steps and build up to 10
- When the person is able to perform with two hands for support, progress to one hand support
- Then two hands fingertip support only to one hand fingertip support
- No chair support



### **Seated alternative**

Sit forwards in the chair with a long back, feet hip width apart and hands on the chair seat for support and perform the Sit to Stand Exercise (Page 94).

## Dynamic Balance (FaME and OTAGO) Toe Walking with Support & without Support

### Purpose

Tell the person that this exercise will improve their balance and reduce their risk of falls and fractures.

### OTAGO Teaching Instructions

- Stand up tall beside the bench
- Hold on and look ahead
- Come up onto your toes
- Walk 10 steps on your toes
- Lower the heels to the ground and turn around
- Repeat in opposite direction

### Additional Teaching Instructions

- Let the person know the number of repetitions/sets/seconds they will be doing
- Let the person know this exercise is moderate to high level in terms of balance challenge
- Let the person know that as this is a balance exercise, they may, at first, feel unsteady and that taking a step to recover balance is normal
- Stand side on to the support and work out what is the best distance from it to get sufficient support without having to lean to either side
- Start with small movements and maximum support
- Check posture and ensure breathing is even as this will help to reduce tension, which may interfere with balance
- Stand with feet comfortably close together in preparation for the exercise
- Transfer the weight onto the toes by lifting the heels
- Bring the feet together to regain balance before lowering the heels to the floor
- For safety, turn around towards the support and repeat the toe walking with the opposite hand on the support

BEGIN WITH 1 SET OF 3 STEPS AND BUILD TO 4 SETS OF 10 STEPS



### Additional Teaching Points

- Think of keeping the weight over the big and second toe
- Stand tall, check posture throughout
- Ensure the spine is neutral and the tummy muscles are pulled in
- Avoid looking down at the feet
- Avoid leaning against the bench or wall
- Move steadily and with control
- Keep the steps small initially until skills improve

### Potential problems

- The person's weight is on the little toe or outside of the foot placing undue stress on the ankle and decreasing stability
- The person leans forwards from the hips
- The person leans towards the support
- The person completes the steps but finds it difficult to keep their balance at the end of the movement
- The person feels unsteady throughout
- The person initiates the walking action before balance is achieved
- The person makes the steps too big and too fast so that they gather speed and lose control

**NB. Ensure the person has been performing and has mastered the technique of the Calf Raise (Page 66) for several weeks before performing the walking exercise in order to ensure sufficient ankle strength.**

### **Solutions**

- Keep the weight over the big and second toes so that the ankles do not roll out
- Ensure the back is tall and the person is not leaning forwards from the hips
- Ensure the person is not putting too much weight on the support
- Encourage the person to bring feet together and lower the heels with control at the end of the movement.
- If feeling unsteady, lower the heels to the floor, rest, check posture and try again
- Ensure balance is gained before setting off on the walk
- Take small steps to maintain control of balance

### **OEP Progression**

- 4 sets of 10 steps with support then progress to 4 sets of 10 steps without support

### **FaME/LLT Additional Progression Approaches**

- With each of the following progressions begin with 5 steps and build up to 10. Progress by building to 2 sets of 10 steps, then 3 sets and then 4 sets of 10 steps.
- One hand support to begin then progress to one hand, then to fingertip support, then progress to no support
- Practise turning away from the support and gradually increase amount of time in no support

### **Seated alternative**

Sit forwards in the chair with a long back, feet hip width apart and hands on the chair seat for support and perform as in standing, but take small steps and limit the number to three, bring the feet together, return to the start and repeat.

## Dynamic Balance (FaME and OTAGO) Tandem Stance (heel toe stand) with Support & without Support

### Purpose

Tell the person that this exercise will improve their balance and reduce their risk of falls and fractures.

### OTAGO Teaching Instructions

- Stand up tall beside the bench/chair
- Hold onto the bench and look ahead
- Place one foot directly in front of the other foot so that the feet form a straight line
- Hold the position
- Change position, bringing the back foot to the front
- Hold the position

### Additional Teaching Instructions

- Let the person know the number of repetitions/sets/seconds they will be doing
- Let the person know this exercise is moderate to high level in terms of balance challenge
- Let the person know that as this is a balance exercise, they may, at first, feel unsteady and that taking a step to recover balance is normal
- Stand side on to the support and work out what is the best distance from it to get sufficient support without having to lean to either side
- Start with small movements and maximum support
- Check posture and ensure breathing is even as this will help to reduce tension, which may interfere with balance
- Start by placing the feet comfortably close together
- Use the foot furthest away from the support (outside leg) as the front foot to begin
- Return the foot to the starting position with both feet together then take the inside foot forward
- For safety, turn towards the support to face the opposite direction

BEGIN WITH 3-4 SECONDS AND BUILD TO 10 SECONDS



### Additional Teaching Points

- Ensure the weight is distributed evenly over both feet
- Stand tall with soft knees and the eyes looking ahead
- Ensure the spine is neutral and the tummy muscles are pulled in

### Potential Problems

- The person leans backwards by having too much weight on the back foot or leans forwards by bending at the hips or waist or ankles
- The person feels unsteady or unconfident in the tandem stand position
- The person is unable to place the foot directly in front of the other foot without losing balance and confidence
- The person can complete the outside leg in front but loses balance or is particularly unsteady when the inside leg is forward

**Solutions**

- Check that they are standing tall, shoulders above hips, spine in neutral, tummy muscles pulled in, chin parallel to the floor and weight evenly distributed over both feet
- Check position in relation to the support. Is the person too far away or too close? Also check if trying to progress too quickly. May need to go back to full hand support or perform between two chairs
- Begin by placing the heel of the front foot beside the big toe of the back foot (semi-tandem position)
- Just use the outside foot at first. Complete the stand then turn into the support to face in the opposite direction and repeat. Make sure this is mastered before using the inside leg

**OEP Progression**

- Progress from 10 second hold with support to 10 second hold without support

**FaME/LLT Additional Progression Approaches**

- With each of the following progressions begin with a 5 second hold and build up to a 10 second hold. There should only be one repetition of this exercise.
- One hand support to begin
- One hand fingertip support
- Progress to no support
- Gradually increase amount of time in no support to maximum 30 second hold

**Seated alternative**

Sit forwards in the chair with a long back, feet hip width apart and hands on the chair seat for support. Perform as in standing.

## Dynamic Balance (FaME and OTAGO) Tandem Walk (heel toe walk) with Support & without Support

### Purpose

Tell the person that this exercise will improve their balance and reduce their risk of falls and fractures

### OTAGO Teaching Instructions

- Stand up tall beside the bench/chair
- Hold on to the bench/chair and look straight ahead
- Place one foot directly in front of the other so that they form a straight line
- Place the foot behind directly in front.
- Repeat for 10 more steps
- Turn around and repeat the exercise.

### Additional Teaching Instructions

- Let the person know the number of repetitions/sets/seconds they will be doing
- Let the person know this exercise is high level in terms of balance challenge
- Let the person know that as this is a balance exercise, they may, at first, feel unsteady and that taking a step to recover balance is normal
- Stand side on to the support and work out what is the best distance from it to get sufficient support without having to lean to either side
- Start with small movements and maximum support
- Check posture and ensure breathing is even as this will help to reduce tension, which may interfere with balance
- To prepare for the walks transfer the weight to the front foot in order to lift the back foot around to the front.
- Leave a small gap between the heel of the front foot and the back foot to allow for the forward movement of the walks
- Try to build to a smooth, steady heel to toe walking action
- When the steps are complete, bring the feet together before turning in towards the support to face the opposite direction

BEGIN WITH 1 SET OF 5 STEPS AND BUILD TO 2 SETS OF 10 STEPS



### Additional Teaching Points

- Stand tall, check posture throughout
- Ensure the spine is neutral and the tummy muscles are pulled in
- Ensure the knees are soft to absorb the forward movement and to increase stability
- Avoid rocking back on or walking on the heels. Aim for a steady walking action.
- Avoid leaning against or away from the support.
- Take small steps and move steadily and with control

### Potential Problems

- The person feels unsteady or unconfident with the walking action
- The person is unable to place the foot directly in front of the other foot without losing balance and confidence
- The person puts the heel of the front foot too close to the back foot
- The person takes steps that are too big and too fast and loses control of balance
- The person turns too quickly to change direction at the end of the walks

### Solutions

- Increase support or use the semi-tandem stance initially, progressing to full tandem only when confidence improves. Perform between two chairs for extra support initially
- Place the heel of the front foot beside the toes of the back foot (rather than in front)
- Leave a small gap between the heel of the front foot and the back foot
- Aim for a slow, steady, controlled, continuous heel to toe walking action
- Ensure a pivot is not used to turn; instead encourage the person to bring both feet together and then turn in towards the support

### OEP Progression

- Progress from 2 sets of 10 steps with support to 2 sets of 10 steps without support

### FaME/LLT Additional Progression Approaches

- With each of the following progressions begin with 5 steps, build up to 10. There should only be one set of a maximum 10 repetitions.
- One hand support to begin
- Only progress when balance can be recovered by compensatory step.
- One hand fingertip support
- When confidence and ability improves, progress to no support
- Gradually increase amount of time in no support
- Gradually increase number of steps



### Seated alternative

Sit forwards in the chair with a long back, feet hip width apart and hands on the chair seat for support. Perform as in standing but place the heel of the front foot beside the toes of the back foot (rather than in front) and limit the number of steps to three. Bring the feet together, return to start and repeat.



## Dynamic Balance (FaME and OTAGO) One Legged (Flamingo) with Support & without Support

### Purpose

Tell the person that this exercise will improve their balance and reduce their risk of falls and fractures.

### OTAGO Teaching Instructions

- Stand up tall beside the bench/chair and hold on for support
- Look straight ahead
- Stand on one leg
- Try to hold the position for 10 seconds
- Place the foot down and repeat on the other leg

### Additional Teaching Instructions

- Let the person know the number of repetitions/sets/seconds they will be doing
- Let the person know this exercise is low to moderate level in terms of balance challenge
- Let the person know that as this is a balance exercise, they may, at first, feel unsteady and that taking a step to recover balance is normal
- Stand side on to the support and work out what is the best distance from it to get sufficient support without having to lean to either side
- Start with maximum support
- Check posture and ensure breathing is even as this will help to reduce tension, which may interfere with balance
- Begin standing tall, feet comfortably close together and not greater than hip width, with the knees slightly soft
- Draw the heel towards the bottom
- After placing the first foot down, transfer the weight onto that leg before lifting the other foot off the floor

BEGIN WITH 3-4 SECONDS AND BUILD TO 10 SECONDS



### Additional Teaching Points

- Stand tall with good posture, looking straight ahead
- Keep the pelvis neutral, the tummy muscles pulled in, the shoulders above the hips and the chin down
- Pull the tummy muscles in a little more before transferring the weight to the support leg
- Brush the foot backwards along the floor until the knee is several inches behind the hip before lifting the heel towards the bottom
- Avoid holding the breath and ensure breathing is even and regular
- Keep the knee directly in line with the hip whilst drawing the heel towards the bottom and during the hold
- Keep the support knee soft
- Lower the foot under control and rest briefly

**Potential Problems**

- The person feels unsteady
- The person leans heavily onto the support
- The person's core stability is so poor that they are unable to lift the leg off the floor
- The person's core stability is so poor that they have to overuse their arms and hands to maintain balance

**Solutions**

- Perform between 2 chairs initially
- Check posture and weight distribution and encourage correct use of support
- Transfer the weight to the support leg, and place the toe of other foot lightly on floor, gradually progressing to lifting the foot off the floor
- Check posture and position the body appropriately in relation to support

**OEP Progression**

- Progress from 10 seconds with support to 10-30 seconds without support

**FaME/LLT Additional Progression Approaches**

- With each of the following progressions begin with a 5 second hold and build to a 10 second hold. There is only one repetition of the exercise on each leg.
- One hand support to begin
- One hand fingertip support
- Progress to no support
- Gradually increase amount of time in no support to 20 seconds and up to 30 seconds

**Seated alternative**

Sit forwards in the chair with a long back, feet hip width apart and hands on the chair seat for support. Perform as in standing making sure the foot of the supporting leg is flat on the floor and the ankle is directly below the knee. Ensure part of the weight is taken through the hands and tummy muscles are pulled in.

## Dynamic Balance (FaME and OTAGO) Sideways Walking with Support & without Support

### Purpose

Tell the person that this exercise will improve their balance and reduce their risk of falls and fractures.

### OTAGO Teaching Instructions

- Stand up tall and place your hands on your hips
- Take 10 side steps to the right
- Take 10 side steps to the left
- Repeat to other side

### Additional Teaching Instructions

- Let the person know the number of repetitions/sets/seconds they will be doing
- Let the person know this exercise is moderate level in terms of balance challenge
- Let the person know that as this is a balance exercise, they may, at first, feel unsteady and that taking a step to recover balance is normal
- Stand tall facing the support and work out what is the best distance from it to get sufficient support without having to lean forwards or back
- Start with small movements and maximum support
- Check posture and ensure breathing is even as this will help to reduce tension, which may interfere with balance
- Feet should be placed comfortably close together, facing forwards
- Take a small side step transferring the weight to the stepping leg and bringing the unweighted leg in to return to the feet together start position



- Move the hands along the bench/chair for support

BEGIN WITH 1 SET OF 5 STEPS AND BUILD TO 4 SETS OF 10 STEPS

### Additional Teaching Points

- Ensure tall posture, looking straight ahead with the pelvis neutral, the tummy muscles pulled in and the knees soft
- On stepping, make sure the foot is securely positioned before transferring the weight from the ball of the foot through to the heel
- Bend knees slightly before taking the step
- Step to a hip width distance initially and build up to shoulder width distance over time
- Ensure that weight is placed evenly on both feet after bringing in the unweighted leg and repeating the sideways walk again

**Potential problems**

- The person turns the stepping foot outwards placing strain on the knee and lower back
- The person leans too far over the stepping leg
- The person performs the movements too quickly
- The person performs the movements too slowly
- The person bends at the waist and allows the chest to drop forwards

**Solutions**

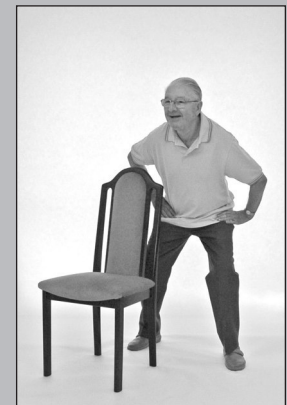
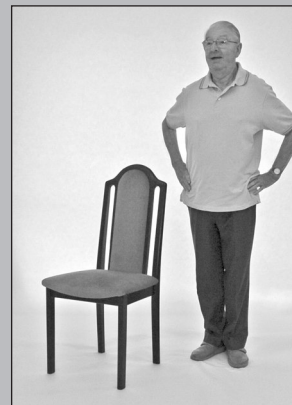
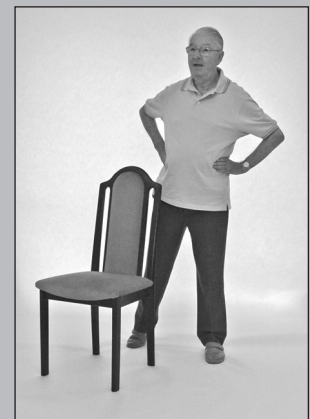
- Focus on keeping the hips facing forwards, the shoulders above the hips and the eyes looking ahead.
- Reinforce correct posture with the shoulders above the hips
- Reinforce a rhythmic yet steady pace
- Redemonstrate and encourage them to aim for that pace
- Ensure upright posture with the shoulders above the hips

**OEP Progression**

- Progress from 4 sets of 10 steps with support to 4 sets of 10 steps without support

**FaME/LLT Additional Progression Approaches**

- Start behind a chair and introduce exercise with two hands for support
- Start with single side step, and gradually progress to double and triple side steps etc.
- Progress to two hands fingertip support
- Progress to facing a wall, or standing behind a long bench or long row of chairs
- Gradually increase no. of steps using fingertip support then progress to hands on hips.
- With each of the above progressions begin with:  
5 side steps and build to 10  
Progress to two sets of 10 then build up to 3 sets and finally 4 sets of 10  
Can be progressed to side steps with a knee bend between each step

**Seated alternative**

Sit forwards in the chair with a long back, feet hip width apart and hands on the chair seat for support. Perform as in standing but take small side steps and limit the number to two.

## Dynamic Balance (FaME and OTAGO) Heel Walking with Support & without Support

### Purpose

Tell the person that these exercises will improve their balance and reduce their risk of falls and fractures.

### OTAGO Teaching Instructions

- Stand up tall beside a bench or wall. Hold on and look ahead
- Come back onto the heels, raising the toes off the floor
- Walk 10 steps on your heels
- Lower the toes back down to the ground and turn around
- Repeat in opposite direction

### Additional Teaching Instructions

- Let the person know the number of repetitions/sets/seconds they will be doing
- Let the person know this exercise is high level in terms of balance challenge
- Let the person know that as this is a balance exercise, they may, at first, feel unsteady and that taking a step to recover balance is normal
- Stand side on to the support and work out what is the best distance from it to get sufficient support without having to lean to either side
- Start with small movements and maximum support
- Check posture and ensure breathing is even as this will help to reduce tension, which may interfere with balance
- Stand with the feet comfortably close together in preparation for this exercise
- Lift the toes and transfer the weight into the heels
- Following the walks, bring the feet together again before lowering the toes to the floor
- For safety, turn around towards the support



BEGIN WITH 1 SET OF 3 STEPS AND BUILD TO 4 SETS OF 10 STEPS

### Additional Teaching Points

- Move steadily and with control
- Tell the person to “think tall”
- Ensure the spine is neutral and the tummy muscles are pulled in
- Look ahead rather than down
- Keep the hips above the ankles
- Avoid bending at the hip so the bottom sticks out backwards to allow greater movement at the ankle when lifting the toes
- Keep the shoulders back, down and relaxed
- Avoid holding the breath
- Avoid locking the knees

**NB. Ensure the person has been performing and has mastered the technique of the Toe Raise (Page 68) for several weeks before performing the heel walking exercise in order to ensure sufficient ankle strength.**

**Potential problems**

- The person leans backwards
- The person loses their balance at the end of the movement when coming back to the start position
- The person makes the steps too big initially
- The person bends forwards at the hips and sticks their bottom out in order to lift the toes off the floor
- The person has poor control on lowering the toes
- The person lifts the toes up too quickly and initiates the walks before 'centring' their balance
- The person feels unsteady or unconfident when doing this exercise
- The person bangs the heels down hard on the walks due to the knees being locked out and so increases joint stress and reduces balance control

**Solutions**

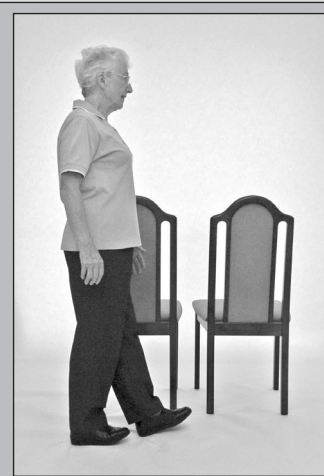
- Ensure the person stands tall with a neutral spine and the shoulders above the hips
- Ensure the person brings their feet together and lowers the toes with control at the end of the movement
- Keep steps small until skills improve
- Ensure the posture stays tall with the spine in neutral and the tummy and bottom in. This will ensure the hips are above the ankles
- Encourage the person to lift and lower the toes with control
- Ensure toes pull up slowly and gain control of balance before setting off on the walk
- If feeling unsteady, lower the toes to the floor, rest and try again. Reassure the person that this exercise is very challenging, being wobbly at first is normal and that performance will improve very quickly
- Encourage attention to keeping the knees soft and placing the heel down gently on each step

**OEP Progression**

- Progress from 4 sets of 10 steps with support to 4 sets of 10 steps without support

**FaME/LLT Additional Progression Approaches**

- With each of the following progressions begin with 5 steps and build up to 10. Progress by building to 2 sets of 10 steps, then 3 sets and then 4 sets of 10 steps.
- One hand support to begin then one hand fingertip support, progress to no support
- Practise turning away from the support and gradually increase time in no support

**Seated alternative**

Sit forwards in the chair with a long back, feet hip width apart and hands on the chair seat for support. Perform as in standing but take small steps and limit the number to three; bring feet together, then take return to start and repeat.

## Dynamic Balance (FaME and OTAGO) Sit to Stand with Support & without Support

### Purpose

Tell the person that this exercise will improve their balance and reduce their risk of falls and fractures. It will also help improve the strength of the leg and hip muscles.

### OTAGO Teaching Instructions

- Sit on a chair which is not too low
- Place the feet behind the knees
- Lean forwards over your knees
- Push off with both hands to stand up

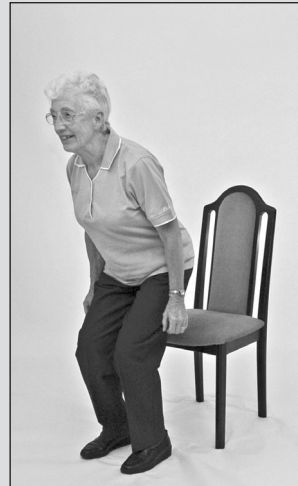
### Additional Teaching Instructions

- Let the person know the number of repetitions/sets/seconds they will be doing
- Let the person know this exercise is low level in terms of balance challenge
- Sit tall with good posture on the front third of the chair, legs and feet hip width apart and a right angle at both knees
- Ensure the pelvis is neutral and the abdominals are pulled in
- Take the feet slightly further back but keep the heels in contact with the floor
- Hold the seat of the chair initially for support
- Pull the tummy muscles in more strongly and lean forwards from the hips with a long spine
- Press down through the thighs and feet and push directly up to standing

### To sit down

- Step backwards until the back of the knees are in contact with the chair (safety check)
- Bend at the knees then the hips to lower slowly and with control into the chair
- To start again, walk the hips forwards towards the front third of the chair

BEGIN WITH 1 SET OF 5 REPETITIONS AND BUILD TO 10 REPETITIONS



### Additional Teaching Points

- Keep the knees hip width apart throughout. Do not let them press together
- Keep looking straight ahead
- Keep the back upright – do not bend forwards at the hips
- Take the weight slightly forward on standing
- Imagine there is a book balanced on the head throughout
- On standing, keep the knees soft but stand fully upright with good posture
- On the downward phase, first bend the knees then bend at the hips to allow the bottom to go backwards without dropping the chest forwards

### Problems

- The person is unable to get up from chair
- The person leans too far forwards on the stand phase so that the lifting work is being done by the back rather than the thigh muscles
- The person bends/hinges from the hips on the lowering phase so that the lower back (not the quadriceps) does the lowering.
- The person reaches for chair with one side of the body during the lowering phase causing misalignment and undue stress on the knees, and spine
- Before or during the lowering phase, the person turns to check the chair is close enough
- The person feels dizzy or light-headed on standing

### Solutions

- Use hands on chair to assist and/or put a firm cushion on the chair seat to raise the starting height until leg strength improves. To progress, without the cushion but still with fingertip support on the chair, try raising the buttocks an inch off the chair, pause and lower with control. Gradually reduce support and increase height of raise. Continue until they have sufficient strength to progress to standing
- Emphasise keeping back upright and looking forwards
- Emphasise bending the knees and keeping the spine long and looking straight ahead as well as encouraging the image of 'sitting backwards'
- Emphasise the benefits of using both arms for support and the negative effects of only using one
- Reinforce safety check, i.e. the ability to feel the chair with the backs of the knees to be reassured that it is in place, then lower gently, feeling for the chair with both hands, keeping the eyes looking forwards at all times
- Do a few marching actions in the chair prior to standing, and move the legs and feet gently when upright

### OEP Progression

- Progress from 5-10 reps using both hands for support to 5-10 reps with one hand for support to 10 reps with no support

### FaME/LLT Additional Progression Approaches

- With each of the progressions begin with 5 repetitions and build to 10. After a rest or 'active rest' progress to a maximum of 2 sets of 10 repetitions.
- Both hands on chair for support
- One hand on chair for support
- No hands
- Build the lifting and lowering action up, an inch at a time, until able to stand tall in one swift, controlled move without use of the hands.



NB. This is the OTAGO Balance Sit to Stand exercise. The FaME Sit to Stand for strengthening can be found on Page 94.



## Dynamic Balance (FaME and OTAGO) Backwards Walking with Support & without Support

### Purpose

Tell the person that these exercises will improve their balance and reduce their risk of falls and fractures.

### OTAGO Teaching Instructions

- The person should stand sideways next to the bench and hold the bench with the nearest hand.
- Stand up tall and look straight ahead
- Place feet close together
- Walk backwards 10 steps. When finished, turn to face the other direction by turning inwards towards the bench
- Hold the bench with the nearest hand. Repeat the exercise

### Additional Teaching Instructions

- Let the person know the number of repetitions/sets/seconds they will be doing
- Let the person know this exercise is moderate level in terms of balance challenge
- Let the person know that as this is a balance exercise, they may, at first, feel unsteady and that taking a step to recover balance is normal
- Stand side on to the support and work out what is the best distance from it to get sufficient support without having to lean to either side
- Start with small movements and maximum support
- Check posture and ensure breathing is even as this will help to reduce tension, which may interfere with balance
- When confidence improves, gradually increase the size of the steps

BEGIN WITH 1 SET OF 5 STEPS AND BUILD TO 4 SETS OF 10 STEPS



### Additional Teaching Points

- Keep the back tall and look straight ahead throughout the exercise
- Ensure the spine is neutral and the tummy muscles are pulled in
- Knees soft throughout
- Ensure the balance is 'centred' before beginning to walk back
- When transferring the weight onto the back foot, use a toe through to heel action and make sure the toe of the front foot comes off the floor as the back heel is placed down
- Ensure that the supporting hand moves back as the body moves back
- Take small steps and keep the pace steady and controlled

**Potential Problems**

- The person leans backwards
- The person attempts to look behind
- The person takes steps that are too large
- The person feels wobbly or unbalanced

**Solutions**

- Maintain tall posture
- Emphasise looking straight ahead
- Emphasise small steps, for example a foot length size to start. When steadiness and confidence improve, gradually take larger steps
- Perform the exercise between 2 chairs initially

**OEP Progression**

- Progress from 4 sets of 10 steps with support to 4 sets of 10 steps without support

**FaME/LLT Additional Progression**

Approaches

- One hand support to begin
- Only progress when balance can be maintained throughout all 10 steps
- One hand then fingertip support then when confidence and ability improves, progress to no support
- Gradually increase amount of time in no support and then gradually increase number of steps
- Tailor as appropriate to the individual, with each of the above progressions:
- Begin with 5 steps and build to 10
- Then rest for two minutes or 'actively rest' by doing another exercise, then build to a second set of 10
- Build to 4 sets of 10



**Seated alternative**

Sit forwards in the chair with a long back, feet hip width apart and hands on the chair seat for support. Perform as in standing but take small steps and limit the number to three; bring feet together and repeat.

## Dynamic Balance (FaME and OTAGO) Heel Toe (tandem) Walking Backwards with Support & without Support

### Purpose

Tell the person that these exercises will improve their balance and reduce their risk of falls and fractures.

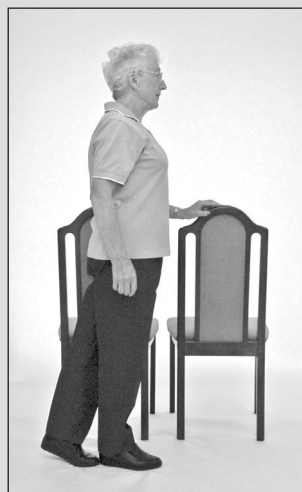
### OTAGO Teaching Instructions

- Stand up tall and look ahead
- Place one foot directly behind the other foot
- Place the foot in front directly behind
- Repeat for 10 more steps. Turn around. Repeat the exercise

### Additional Teaching Instructions

- Let the person know the number of repetitions/sets/seconds they will be doing
- Let the person know this exercise is high level in terms of balance challenge
- Let the person know that as this is a balance exercise, they may, at first, feel unsteady and that taking a step to recover balance is normal
- Stand side on to the support and work out what is the best distance from it to get sufficient support without having to lean to either side
- Start with small movements and maximum support
- Check posture and ensure breathing is even as this will help to reduce tension, which may interfere with balance
- The appropriate time to move the front foot around to the back is when the weight is still over the front of the back foot but the heel is down. Avoid waiting until the bodyweight has moved into the heel

BEGIN WITH 1 SET OF 3 STEPS AND BUILD TO 2 SETS OF 10 STEPS



### Additional Teaching Points

- Stand tall with the spine neutral, the tummy muscles pulled in, the knees soft and the chin down
- Avoid leaning forwards or backwards.
- Leave a small gap between the heel of the front foot and the toe of the back foot to allow for the walk action
- Avoid leaning against the support
- Move steadily and with control

### Potential Problems

- The person feels unsteady or unable to place the foot in the correct position
- When moving the front foot, the person catches their heel on the back toe
- The person turns to change direction too quickly

### Solutions

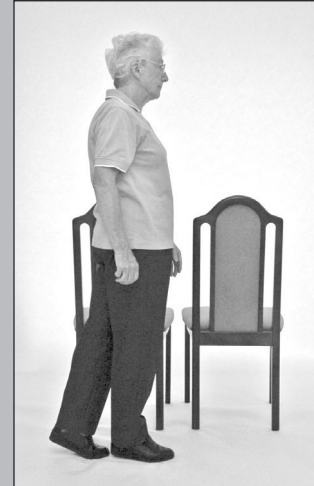
- Initially place the heel of the front foot beside the big toe of the back foot and/or perform between 2 chairs
- Try to place the back foot directly behind the front foot but ensure there is sufficient space between the heel and toe to avoid squashing the toe of the back foot, which may decrease stability
- To turn around take small, steady steps and turn in towards the support

### OEP Progression

- None

### FaME/LLT Additional Progression Approaches

- With each of the following progressions begin with 5 steps and build to 10 steps, progress by turning around and repeating in another direction. There is a maximum of 2 sets of 10 steps for this exercise
- Stand between two chairs for extra support to start. Then one hand and only progress when balance can be recovered by compensatory step
- Progress onto one hand fingertip support and when confidence and ability improves, progress to no support
- Gradually increase number of steps



### Seated alternative

Sit forwards in the chair with a long back, feet hip width apart and hands on the chair seat for support. Perform as in standing but place the heel of the front foot beside the toes of the back foot (rather than in front) and limit the number of steps to three.

## Dynamic Balance (OTAGO) Walking and Turning with Support (Figure 8) & without Support

### Purpose

Tell the person that this exercise will improve their balance and reduce their risk of falls and fractures.



### OTAGO Teaching Instructions

- Instruct the person to walk at their regular pace
- Begin by walking in a circle in a clockwise direction
- Come back to the starting position
- Walk in another circle in an anti-clockwise direction
- The whole movement should represent a figure of 8

### Additional Teaching Instructions

- Let the person know the number of repetitions/sets/seconds they will be doing
- Let the person know this exercise is high level in terms of balance challenge and should be tackled in stages
- Begin this exercise using a chair to help with spatial awareness and support
- Stand tall behind a chair and imagine a circle going out from, around the chair, and returning to the point where they're standing. Then ask them to imagine a similar circle at the back of the chair, so in fact they're standing at the centre of a figure of 8
- Walk with small, steady steps around the front circle heading to either the right or left depending which way they feel most confident
- On returning to the back of the chair, pause for a moment to relax and ensure steadiness then turn and walk around the back circle finishing behind the chair (as start position)

- Try to make the circles the same size
- Repeat until it is possible to move from one circle to the next without holding the chair for support and without stopping between the circles

BEGIN WITH 1 CIRCLE AND BUILD TO 2 FIGURES OF 8

### Additional Teaching points

- Take small steps initially
- Try to be aware of the position of the chair to act as a guide but avoid looking at it which could interfere with balance. Keep the eyes looking ahead
- Walk at a regular pace. Move steadily and with control
- Maintain tall posture with the spine neutral, the tummy muscles pulled in and the chin parallel to floor
- If feeling unsteady or the pace is increasing or decreasing inappropriately, stop for a moment, relax, stand tall and start again

### Potential Problems

- The person moves too quickly from one circle to the next decreasing stability
- The person is unable or unwilling to set off even with the support of a chair
- The person is able to complete the front but not the back circle or is able to complete the circles leading with one side of the body but not the other

### **Solutions**

- Ensure the person completes one circle and pauses to prepare for the next circle initially
- Place chairs at the halfway point or at the quarter, half and three-quarter points of the circle and remove in stages until confidence or skill improve
- Place two chairs back to back but with sufficient space between them for the person to move in and out safely at the centre of the figure 8

### **OEP Progression**

- Progress from 2 repetitions with support to 2 repetitions without support

### **FaME/LLT Additional Progression Approaches**

- Begin with a brief pause between circles with the hand on the back of the chair and then complete the other circle. Repeat twice.
- Complete without steadying on the back of the chair. Repeat twice.
- Remove the chair and repeat one full repetition of the figure of 8 and then build to two repetitions



### **Seated alternative**

Sit forwards in the chair with a long back, and perform a combination of any two of the seated alternatives for the other balance exercises.

## Dynamic Balance (OTAGO) Stair Walking with and without Support

### Purpose

Tell the person that this exercise will improve their balance, their steadiness on stairs and reduce their risk of falls and fractures.

### OTAGO Teaching Instructions

- Hold on to the handrail for this exercise
- Go up the stairs and down again

### Additional Teaching Instructions

- Let the person know the number of steps they will be aiming for in a particular week
- Let the person know this exercise is moderate level in terms of balance challenge
- Start with maximum support
- Check posture and ensure breathing is even as this will help to reduce tension which may interfere with balance
- Use the strongest leg to lead on the first step initially
- Place the leading foot fully on the stair
- Push upwards and forwards from the lower foot
- Bring the lower foot onto stair beside the leading foot

**BUILD UP TO 14 STEPS SEVERAL TIMES A DAY  
5 DAYS A WEEK**

### Additional Teaching Points

- Look down with the eyes not the head
- Maintain tall posture throughout
- Ensure the spine is neutral and the tummy muscles are pulled in
- Feel the muscles in the thigh of the leading leg working as you step up

### OEP Progression

- None

### FaME/LLT Additional Progression Approaches

- Begin by stepping up with the strongest leg and bring the back foot onto the same step and repeat
- Then practice stepping up leading with the weaker leg
- Gradually progress until the steps are climbed consecutively, alternating leading legs regularly
- When coming down the stairs, begin by stepping down with the strongest leg and bring the other foot onto the same step and repeat
- Then practice stepping down with down leading with the weaker leg
- Gradually progress until the steps are descended consecutively, alternating leading legs

### Seated alternative

Sit forwards in the chair with a long back, and perform a combination of any two of the seated alternatives for the other balance exercises, or the Sit-to-Stand exercise on Page 51.



- Use the handrail for support but try to use the thighs not the arms to do the stair-climbing action

### Potential Problems

- The person uses the handrail to pull the body upwards onto the step
- The person leans towards the handrail or bends from the waist or hips putting undue strain on the lower back
- The person catches the toe of the back foot on the stair

### Solutions

- Encourage use of the handrail as support only, and pushing up through the legs
- Encourage tall posture, looking ahead not down
- Encourage active attention to the stepping action of the back leg

## Dynamic Balance (FaME and OTAGO)

### Picking up an Object Supported & Unsupported

#### Purpose

Tell the person this exercise is to practice an everyday activity to improve the strength and balance needed to perform it skilfully and safely.

#### OTAGO Teaching Instructions

- Place an object in the middle of the floor
- Bend down keeping the back straight and pick the object up
- Stand up tall with the object
- Place the object on the floor again
- Repeat

#### Additional Teaching Instructions

- Let the person know the number of repetitions/sets they will be doing
- Let the person know this exercise is high level in terms of balance challenge
- Stand side on to the chair holding on with one hand, feet hip distance or a little wider
- Take the leg nearest the chair slightly forward
- Keeping the hand on the chair when bending down to pick up the object with the outside hand

BEGIN WITH 1 REPETITION AND BUILD TO 2 REPETITIONS

#### Additional Teaching Points

- When bending down, press the hips backwards so that the knees stay above the toes
- Do not allow the bottom to drop lower than the hips
- Keep the knees in line with and above the toes
- Keep the chest lifted and avoid rounding the shoulders
- Ensure the spine is neutral and the tummy muscles are pulled in
- Avoid leaning too heavily on the chair

#### OEP Progression

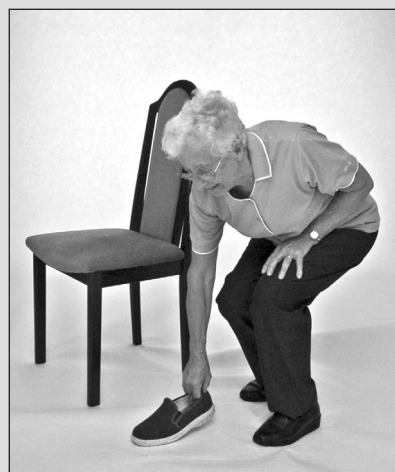
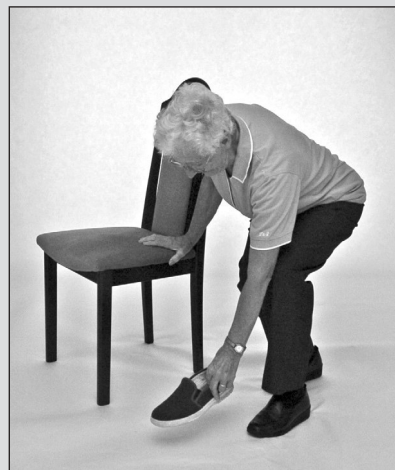
- Increase the number of repetitions to 2

#### FaME/LLT Additional Progression Approaches

- Progress to 2 repetitions on each side of the chair
- Progress to fingertip support then no support

#### Seated alternative

Sit forwards in the chair with a long back, and perform a combination of any two of the seated alternatives for the other balance exercises.



#### Potential problems

- The person has insufficient flexibility/balance/strength to reach to the floor

#### Solutions

- Start by placing the object on a low table then gradually progress to the floor



## Dynamic Balance (FaME and OTAGO) Stepping over an Object Supported & Unsupported

### Purpose

Tell the person this exercise is to practice an everyday activity to improve the strength and balance needed to perform it skilfully and safely.

### OTAGO Teaching Instructions

- Place a slipper in the middle of the floor
- Step over the slipper
- Turn around
- Step back over the slipper
- Repeat

### Additional Teaching Instructions

- Let the person know the number of repetitions/sets they will be doing
- Let the person know this exercise is high level in terms of balance challenge
- Stand side on to the chair holding on with one hand, feet hip distance or a little wider
- Keep the hand on the chair whilst stepping over the slipper with the outside leg

BEGIN WITH 1 REPETITION AND BUILD TO 2 REPETITIONS

### Additional Teaching Points

- Ensure the spine is neutral and the tummy muscles are pulled in
- Keep the chest lifted
- Ensure a large enough step to clear the slipper safely



### Potential problems

- The person catches a foot on the slipper
- The person is too nervous to perform the movement

### Solutions

- Ensure the foot is flexed at the ankle and lifted sufficiently high
- Start by practicing the stepping action without the slipper

### OEP Progression

- Increase the number of repetitions to 2

### FaME/LLT Additional Progression Approaches

- Progress to 2 repetitions on each side of the chair
- Progress to fingertip support then no support



### Seated alternative

Sit forwards in the chair with a long back, and perform a combination of any two of the seated alternatives for the other balance exercises.

## Dynamic Balance (FaME) One Legged (Flamingo) Swing with Support and without Support

### Purpose

Tell the person this exercise improves balance and reduces the risk of falls.

### Teaching Instructions

- Let the person know the number of repetitions/sets they will be doing
- Let the person know this exercise is moderate level in terms of balance challenge
- Stand sideways on to the chair, holding the chair back for support
- Stand tall, with the feet slightly apart and the weight evenly distributed between both feet
- Relax the other arm by the side of the body
- Pull the tummy muscles in and lift up out of the hips
- Transfer the weight onto the leg nearest the chair
- Slide the other foot forwards keeping the toes in contact with the floor, then lift the leg so that the foot is a few inches off the floor and the knee is bent
- Swing the leg gently backwards in a controlled sweeping motion, keeping it close to the body

BEGIN WITH 3 SWINGS AND BUILD TO 6 SWINGS

### Teaching Points

- Keep the supporting leg straight but do not lock the knee
- Keep both hips facing forwards
- Keep the pelvis neutral and the tummy muscles pulled in to prevent the back from arching
- Look ahead rather than down
- Feel the muscles in the supporting leg working to maintain balance

### Progression

- Increase the number of repetitions from 3 to 6
- Progress to fingertip support then no support
- At all stages, make ensure the person has maintained good technique for at least two weeks before progressing

### Seated alternative

Sit forwards in the chair with a long back, and perform a combination of any two of the seated alternatives for the other balance exercises.



### Potential Problems

- The person performs too quickly, lacking control
- The person's trunk moves backwards and forwards in the opposite direction to the leg
- The person's support knee is locked
- The person experiences discomfort in the supporting leg

### Solutions

- Reinforce that the movement should be executed with control
- The trunk should remain still; tighten the tummy muscles and reduce the size of the leg movement
- Reinforce that the support knee should remain soft
- Check that the hip is in line with the knee and reduce the number of repetitions



## Dynamic Balance (FaME) Front, Side, Back Lunges with & without Support (Compensatory stepping strategy)

### Purpose

Tell the person this exercise improves balance and reduces the risk of falls and fractures. To help with compensatory steps needed to regain balance in everyday life such as during loss of balance when walking on uneven pavements or on a bus that stops suddenly.

### Teaching Instructions

- Let the person know the number of repetitions/sets they will be doing
- Let the person know this exercise is moderate level in terms of balance challenge
- Stand side on to the chair holding on with one hand
- Ensure correct posture with the feet hip width apart and the knees soft
- Take half a step forwards with the outside leg, placing the foot flat on the floor and bending the knees
- Press gently off this foot to bring the leg back to the start position
- Then take half a step sideways with the outside leg, placing the foot flat on the floor and bending the knees
- Press gently back to the start position
- Take half a step diagonally forwards with the outside leg, placing the foot flat on the floor and bending the knees
- Press gently off this foot to bring the leg back to the start position
- Finally, take half a step diagonally backwards, again placing the foot flat on the floor and slightly bending the knees
- Press back to the starting position

BEGIN WITH 1 REPETITION IN EACH DIRECTION AND BUILD TO 2 REPETITIONS

### Teaching Points

- Ensure tall posture, looking straight ahead
- Ensure the spine is neutral and the tummy muscles are pulled in
- Make sure the knee does not move too far forwards of the toe with each lunge



- Ensure that the weight is evenly distributed between the legs during the lunge
- Avoid locking out the knee when pushing back from the lunge to the start position
- Keep the movement controlled
- Put the weight back evenly between both feet when returning to the centre
- Imagine the lunges are moving 'around the clock face' to help with spatial awareness

### Potential problems

- The person performs too quickly or slowly
- The person's lunge is too deep putting undue stress on the knee and decreasing stability
- The person puts too much weight over the front leg so that the front knee moves ahead of the front toe

### Solutions

- Ensure performance at a rhythmical, controlled speed
- Begin with half a step and progressively build up the length and depth of the lunge; check that the angle at the knee does not go beyond 90°
- Reinforce the need to keep the weight evenly distributed between both legs and the knee above the toe

### Progression

- Make each lunge a little longer and deeper
- Then make the press back to the start position more dynamic by pushing off the floor more powerfully and quickly then pausing briefly with the body weight balanced on one leg before returning to the start position
- Build from here to a double lunge in each direction; perform the first lunge then take a smaller lunge in the same direction. Return to the start position as before
- One hand then fingertip support then progress to no support
- At all stages, make sure the person has maintained good technique for at least two weeks before progressing
- Build to 2 sets of 1 lunge all the way 'round the clock' with the right leg then the left



### Seated alternative

Sit forwards in the chair with a long back, feet hip width apart and hands on the chair seat for support. Perform as in standing, but keep size of steps small.

## Dynamic Balance (FaME) Upward Reach Balance with Support & without Support

### Purpose

Tell the person this exercise improves balance and reduces the risk of falls and fractures

### Teaching Instructions

- Let the person know the number of repetitions/sets they will be doing
- Let the person know this exercise is moderate to high level in terms of balance challenge
- Stand tall side on to the chair with feet hip distance apart and knees soft, one hand on the chair for support
- Raise one arm up above the head as close as possible to the ear, palm facing inwards
- At the same time lift both heels and rise up onto the toes
- Lower the heels then arm with control
- Repeat with the other arm
- START WITH 3 LIFTS AND BUILD TO 6

### Teaching Points

- Keep the spine neutral and the tummy muscles pulled in to prevent the lower back from arching
- Keep the knees soft
- Keep the weight over the big and second toes
- Think of driving upwards and forwards with the movement



### Potential Problems

- The person's ankles roll out
- The person leans too far backwards or forwards
- The person feels unsteady or wobbles

### Solutions

- Reinforce keeping the ankles in line with the knees and feet and the weight over the big and second toe
- Ensure the shoulders remain above the hips and the spine is in neutral
- Go back to the supported version

### Progression

- Progress from one hand support to fingertip to no support
- When progressing to no support use both hands above the head
- Progress to 6 repetitions without support



### Seated alternative

Sit forwards in the chair with a long back, feet hip width apart and under knees. place one hand on chair seat for support. Perform as in standing.

# Notes



## Strengthening: Resistance Training Part 1 with Bodyweight (FaME and OTAGO) - Calf Raise Strengtheners (support & no support)

### Purpose

Tell the person this exercise will strengthen the calf muscles, ankles and toe joints. To help with everyday actions such as walking, reaching up into high cupboards.

### OTAGO Teaching Instructions

- Ensure the person is standing close to the bench/ chair
- Initially the person is holding with both hands then progressing to one hand with a light hold so that more balance work is done at the ankles
- The feet are shoulder width apart
- The movement is slow
- The body should come straight up with the movement rather than forward
- Progress to no hold

### Additional Teaching Instructions

- Let the person know the number of repetitions and sets they will be doing
- Let the person know that they should count quietly out loud "1,2,3" as they lift and "1,2,3" as they lower to ensure regular breathing
- Raise and lower both heels with a smooth, continuous lift and a controlled landing

BEGIN WITH 1 SET of 5 REPETITIONS AND BUILD TO 10 REPETITIONS

### Additional Teaching Points

- Stand tall and ensure the spine is neutral and the tummy muscles are pulled in
- Look ahead rather than down
- Keep the weight over the big and second toe so that the ankles cannot roll out
- Keep the shoulders back, down and relaxed
- Avoid holding the breath
- Avoid locking the knees
- Lower the heels to the point where they touch the floor but are still under control, pause for a second then put the weight fully back on both feet and rest
- Feel the muscle work in the calf



### Potential problems

- The person looks down or up
- The person's ankles roll out
- The person locks out (hyperextends) the knee
- The person leans forward at the hips taking too much weight through the arms
- The person rocks their weight backwards on lowering the heels so that the toes lift off the floor
- The person is unable to balance with their feet hip or shoulder distance apart
- The person lifts too quickly then stops

### Solutions

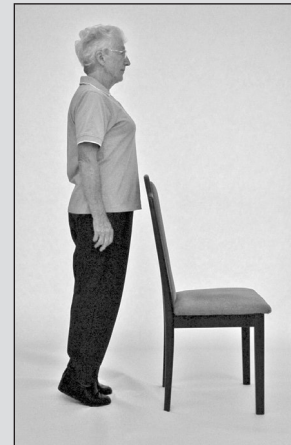
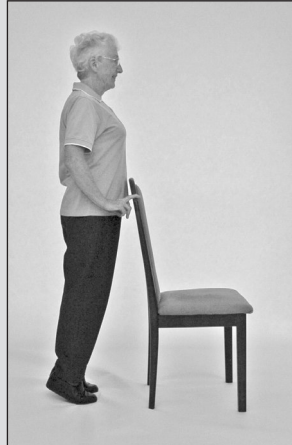
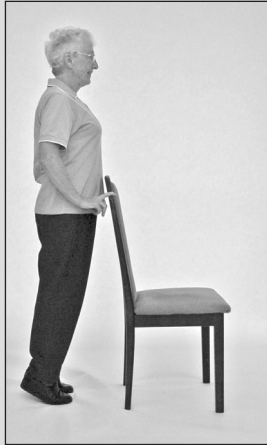
- Keep reminding the person to look ahead
- Keep the weight over the big and second toes so that the ankles do not roll out
- Ensure the knees are soft
- Ensure the back is tall and the person is not leaning forward from the hips
- Encourage the person to lower the heels with control maintaining an upright posture with the toes in contact with the floor at all times
- Introduce the exercise with the feet comfortably together before progressing to hip width apart and finally to shoulder width apart
- Keep the effort steady and continuous and keep working towards lifting higher

**OEP Progression**

- Progress from 10 repetitions with support to 10 repetitions without support

**FaME/LLT Additional Progression Approaches**

- BEGIN WITH 1 SET of 5 REPETITIONS AND BUILD TO 10 REPETITIONS
- BUILD TO 2 SETS OF 10 REPETITIONS
- When reducing support progress from 2 hands, to 1 hand, to 1 finger to no support
- Remember that foot position affects level of challenge; in this exercise feet hip width is more challenging than feet close together because of the ankle strength required



**Seated alternative**

Sit forwards in the chair with correct posture, feet hip distance and under the knees. Hold the sides of the chair or place the hands flat on the thighs. Perform as the standing version.



## Strengthening: Resistance Training Part 1 with Bodyweight (FaME and OTAGO) - Toe Raise Strengtheners (support & no support)

### Purpose

Tell the person this exercise will strengthen the shin muscles, ankle and toe joints. This will help everyday actions such as walking, stepping backwards and on and off pavements.

### OTAGO Teaching Instructions

- Let the person know that this exercise is the opposite exercise to the calf raises
- The person is standing close to the bench
- Initially the person is holding with both hands then progressing to one hand with a light hold so that more balance work is done at the ankles
- The feet are shoulder width apart
- The movement is slow
- Let the person know that the movement is only small
- Ensure the person avoids a rocking movement
- Progress to no hold

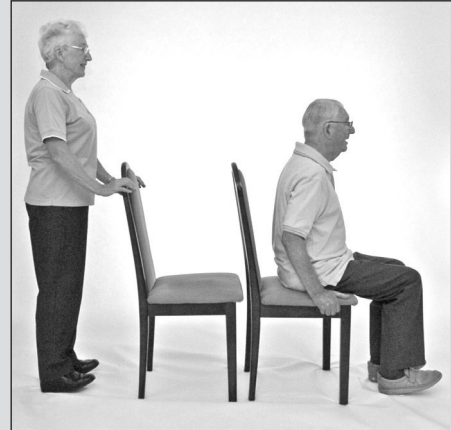
### Additional Teaching Instructions

- Let the person know the number of repetitions and sets they will be doing
- Let the person know that they should count quietly out loud "1,2,3" as they lift and "1,2,3" as they lower to ensure regular breathing
- Lift and lower the toes with a smooth, continuous action

BEGIN WITH 1 SET of 5 REPETITIONS AND BUILD TO 10 REPETITIONS

### Additional Teaching Points

- Stand tall with the spine in neutral and the tummy muscles pulled in
- Look ahead rather than down
- Keep the hips above the ankles
- Keep the shoulders back, down and relaxed
- Avoid holding the breath
- Avoid locking the knees
- Feel the muscle work in the shins



### Potential problems

- The person's ankles are weak or have a limited range of movement resulting in almost no dorsiflexion (lift of the toes) initially
- The person bends forwards at the hips sticking the bottom out in order to lift the toes off the floor
- The person has poor control on lowering
- The person jerks into the movement rather than performing a steady lift
- The person feels unbalanced as the toe raise is not an everyday movement

### Solutions

- Reassure the person that poor range of movement is common and will improve quickly with this exercise
- Ensure the posture stays tall with the spine in neutral and the tummy and bottom in. This will ensure the hips are above the ankles
- Encourage the person to lower the toes with control
- Encourage the person to perform a steady, sustained lift
- Reassure the person that being wobbly at first is common and balance will improve quickly with this exercise

**OEP Progression**

- Progress from 10 repetitions with support to 10 repetitions without support

**FaME/LLT Additional Progression Approaches**

- BEGIN WITH 1 SET OF 5 REPETITIONS AND BUILD TO 10 REPETITIONS
- BUILD TO 2 SETS OF 10 REPETITIONS
- When reducing support progress from 2 hands, to 1 hand, to 1 finger to no support
- Remember that foot position affects level of challenge; in this exercise feet hip width is more challenging than feet close together because of the ankle strength required



**Seated alternative**

Sit forwards in the chair with correct posture, feet hip distance apart and ankles under the knees. Hold the sides of the chair or place the hands flat on the thighs. Perform as the standing version.

## Strengthening: Resistance Training Part 2 with Weights (OTAGO) - Front Knee Strength Seated

### Purpose

Tell the person this exercise will strengthen the hip muscles around the hip bones and help stabilise the knee joint. To help with everyday actions such as walking and stair climbing

### OTAGO Teaching Instructions

- The person should be sitting with the back well supported
- Place a weight around the ankle
- The person should start the exercise with the leg back slightly beyond a 90° angle at the knee
- Sit opposite the person and demonstrate the movement
- Ensure that the person can attach and remove the weight from the ankle unaided

### Additional Teaching Instructions

- Let the person know the number of repetitions and sets they will be doing
- Let the person know they should count quietly out loud "1,2,3" as they lift and "1,2,3" as they lower to ensure regular breathing
- Push the bottom back into the support before straightening the spine into the upright position against the back of the chair
- Raise the foot, straightening the knee, then lower the foot under control
- Brush the foot along the floor before lifting and again as it lowers to the floor
- Rest briefly with the foot flat on the floor before performing the next repetition

BEGIN WITH 1 SET OF 5 REPETITIONS AND BUILD TO 10 REPETITIONS

### Additional Teaching Points

- Ensure the movement is slow and controlled on both lifting and lowering
- Ensure the leg is lengthened and the knee straightened, but not locked, when lifting
- Ensure the spine is neutral and the tummy muscles are pulled in
- Avoid holding the breath; ensure breathing is regular and timing accurate by counting quietly out loud
- Feel the muscle work in the front of the thigh
- Ensure you have read the LLT Guidelines on the use of ankle weights (Page 136)



### Potential problems

- The person lifts the entire thigh off the chair
- The person performs the exercise too quickly
- The person lifts the toe and foot higher than the hip so the back rounds and the chest slumps
- The person arches the lower back arches and slides down away from the support
- The person takes too much weight through the arms
- The person does not bring the leg back sufficiently at the end of the movement
- The person does not rest the leg on the floor between movements
- The person does not lengthen the leg (i.e. saggy lift)
- The person locks out the knee (hyperextends)
- The person experiences discomfort or pain in the knee
- The person holds their breath

**Solutions**

- Ensure the person keeps the back of the thigh in contact with the chair
- Ensure the person performs with control
- Ensure the person sits tall and the lift is performed without momentum and the toe remains lower than the knee
- Reposition the back in contact with the chair back
- Ensure the upper body is upright yet shoulders and arms remain relaxed
- On the downward phase, ensure the person returns the foot to slightly beyond a right-angle (90°) at the knee
- Ensure the person briefly rests before performing the next repetition
- Tell the person to keep the leg long and strong as they lift
- Ensure the knee is straightened but not locked
- If exercise technique is correct, discontinue this exercise and encourage knee brace exercise (Page 72) or a simple knee lift keeping the foot under the knee
- Encourage the person to count quietly out loud

**FaME/LLT Additional Progression Approaches**

- Begin with no weight and 1 set of 5 repetitions
- Progress to 5 repetitions and build up to 10 repetitions, using the lowest ankle cuff weight (1kg)
- Progress to next weight (1.5kg) and build up from 5 to 10 repetitions
- Progress to next weight
- Build to 2 sets of 10 repetitions
- At all stages, ensure the person has maintained good technique for at least two weeks before progressing

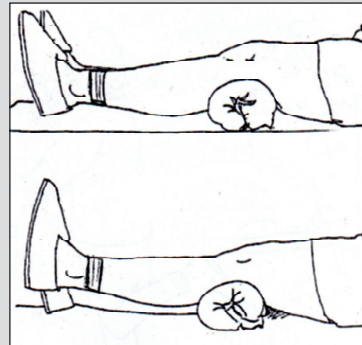
## Strengthening: Resistance Training Part 2 with Weights (OTAGO) - Knee Brace Strength Seated Home Exercise for Individuals Needing Additional Knee Strength

### Purpose

Tell the person this exercise will strengthen the knee extensors (quadriceps) and stabilise the knee joint. To help with everyday actions such as walking and stair climbing.

### OTAGO Teaching Instructions

- Strap the weight onto the ankle
- Sit up with the back supported
- Place a rolled towel under the knee
- Straighten the knee by bracing the thigh muscles; the heel lifts off the floor
- Hold for 10 seconds
- Repeat 10 times for the right leg
- Repeat the exercise 10 times for the left leg



### Additional Teaching Instructions

- Let the person know the number of repetitions and sets they will be doing
- Follow the guidelines for getting safely down to and up from the floor
- Place the hands on the floor beside the hips to help keep the back long and supported
- Offer the option of bending the knee of the non-working leg to help with back comfort and support
- When holding, ensure breathing is regular and even

BEGIN WITH 1 SET OF 5 REPETITIONS AND BUILD TO 10 REPETITIONS

### Additional Teaching Points

- Sit with the legs in line with the hips and the knees, ankles and toes facing the ceiling
- Keep the pelvis neutral, the tummy muscles pulled in and the shoulders relaxed and down
- Fully straighten the knee with control pressing against the towel, feeling the muscles around the knee tighten
- Feel the muscle work in the front of the thigh

### Seated alternative

Sit tall at the front of the chair, knees hip width apart and above the ankles, with a rolled up towel placed under one thigh just above the knee. Press down on the towel with the back of the knee as the main exercise.

### Potential problems

- The person locks out or hyperextends the knee
- The person experiences discomfort or pain in the back of the knee
- The person experiences discomfort in the lower back
- The person starts to bend the knee and lift the leg from the hip rather than lifting the heel

### Solutions

- Ensure the knee is straightened but not locked
- Reposition the towel so that it is above the knee joint (i.e. against the lower thigh) and check the knee, ankle and toe alignment
- Initially sit on a rolled up towel to raise the level of the hips and/or bend the knee of the non-working so that the foot is flat on the floor
- Encourage the person to achieve straightening the knee and lifting the heel

### FaME/LLT Additional Progression Approaches

- Start with only a brief hold and gradually progress
- Build gradually from 5 to 10 reps
- Build to 2 sets of 10 reps

**Notes**

**laterLife**  
**training.**