



# **Lifestyle-integrated Functional Exercise (LiFE) program to prevent falls**

**PARTICIPANT'S  
MANUAL**



Lindy Clemson, Jo Munro & Maria Fiatarone Singh





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Lindy Clemson, Jo Munro & Maria  
Fiatarone Singh



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The Lifestyle-integrated Functional Exercise (LiFE) program has been proven effective in reducing the risk of falls and in improving capacity for functional everyday activity. Balance and strength, particularly ankle strength, can be markedly improved and maintained if the LiFE program becomes part of daily routines.

The LiFE activities have all been designed to help you keep active and reduce your chance of falling.

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## Introduction



## INTRODUCTION

Welcome to the Lifestyle-integrated Functional Exercise (LiFE) program. The activities in this program have been designed to improve and maintain your balance and the muscle strength in your hips, knees and ankles.

The LiFE program is a new approach. In this program you will learn how to incorporate balance and strength activities into your everyday tasks and routines.

We know that balance and strength training by people in their 70s, 80s and 90s help prevent falls.

As well as preventing falls, there are other benefits of improving your balance and strength:

- Your walking will improve.
- You will feel better.
- You will have more energy.
- You will find it easier to do the household chores such as picking up the groceries.
- You will stay independent.

Our society today encourages us to find ways of doing less. We use remote controls; we get our groceries delivered; we drive everywhere. Because of this we need to work harder to keep up our strength and balance. The old saying still applies: ‘If you don’t use it, you lose it’. The more you use it, the less chance there is that you will lose it. You can increase your muscle strength and improve your balance, but you have to work on these regularly to make these improvements.

This program is a lifestyle approach to help you modify everyday activities – even the way you stand up or pick something up – into ways of improving your strength and balance.

Habits can be changed gradually by thinking about what you do and how you do it. There are many opportunities in our everyday life to incorporate balance practice and strength training.

You will learn the principles behind improving your balance and strength and apply these principles to daily activities.

You will look for ways that you can turn your daily tasks into opportunities for improving your strength and balance. Instead of looking for ways to avoid doing things, you will look for ways to add these activities into your daily routine.

As your balance and strength improve you will be able to do more walking and other physical activities. You should think about ways that you can increase the amount of physical activity that you do.

You can increase your physical activity in some simple ways:

- Use the stairs whenever possible.

## Introduction

- Change the channel at the TV instead of using the remote.
- Get off the bus one stop earlier.
- Walk all the way to the traffic lights to cross the road.
- Park slightly further from the shops.
- Walk to the shops instead of driving.

## Walking with confidence

It is important to think about the way you walk. Many older people shuffle because it ‘makes them feel steadier’. However, shuffling and not lifting your feet is more likely to make you trip and fall. When you walk you should try to put your heel down first and push off with your toes.

The program will help to improve your walking.

*Shuffling felt ‘safe’. But now I understand that shuffling won’t necessarily prevent me from falling. It may even cause me to trip more easily because I’m not lifting my feet. (Dorothy)*

*When I saw what ‘normal’ walking was supposed to look like, I could see how my walking had really gone downhill. (Robert)*

## Key points – the LiFE program

- You will learn the balance and muscle strengthening principles.

These form the basis of this program. You will learn these principles and how to apply them to your life and daily activities.

- To improve your balance you need to practise activities that challenge your balance.

You need to keep progressing to more challenging activities. You should **‘let go but keep up the flow’**.

- To improve your strength you need to make your muscles work harder.

You should **‘load your muscles’** whenever you can.

- You will change your habits.

You will include balance and strength activities in your everyday tasks. You will need to practise to make them part of your usual routine.

- You will learn to look for opportunities in your daily tasks where you can include the balance and strength activities.

As time goes on you will find more and more opportunities. Your ideas can be passed on to others.

## Introduction

- You will learn how to make the exercise program more effective.
- The program will make it easier for you to become more physically active.

You will enhance your physical fitness by being more active in your daily routines.

- You will need to think about safety.

Where you do your activities, how much support you need, what type of shoes you are wearing, how tired you are – these are just some of the things you need to think about when doing your activities.

## *Precautions*

The benefits of exercise are almost always positive. There are some sensations that are normal to experience when starting exercises. There are others that are not desirable. You should contact your therapist if you are concerned.

### **Soreness from training**

You may experience some muscle soreness at first or if you do a lot of exercises. This is a natural part of muscle rebuilding and repair towards building larger, stronger muscles. It is a normal feeling of muscle soreness that peaks about one to two days after training. It will lessen and disappear as you train regularly.

If you experience any sharp pain in the muscles or joints you are training stop the activity and contact your therapist. You may have upgraded too quickly.

### **Knee bends (squatting)**

If you have increased knee pain with squatting you should stop and contact your therapist. You may need to modify the way you do your squats or the activities that you do them with.

### ***Stop exercising and contact your GP if you experience:***

- chest pain
- dizziness
- severe shortness of breath
- significant change in musculoskeletal pain
- any other severe symptoms.

Introduction  
***Making the program more effective***

**Make changes to your surroundings**

We generally try to organise our home to make life easy. Objects that we use all the time we have in an easy-to-get-to spot. As part of this program we would like you to think of ways that you can ‘unsimplify’ things and turn everyday tasks into opportunities for improving your strength and balance.

Change where you keep things, or how you do things, to encourage you to do strength and balance activities. For example:

- Put the dishwashing liquid on a lower shelf then bend your knees to reach it.
- Put the washing powder on a lower shelf.
- Put the pegs on the ground and bend your knees to get them.
- Put your cup in a higher cupboard and stand on your toes to reach it.
- Make more trips to carry the shopping up the stairs.
- Keep the remote on top of the TV – you won’t lose it and you will have to stand and walk to the TV to get it.



*I was trying to think of ways I could increase the number of times that I bend my knees. I bent them to get the dishwashing liquid out of the cupboard, so I thought, if I move the toothpaste to underneath the [bathroom] sink, then I will need to bend my knees to reach the toothpaste. (Harry)*



Balance training

## BALANCE TRAINING

Balance is a complex skill. It depends on the brain receiving and responding to messages from our muscles, joints and eyes.

We know that balance can be improved with practice. Training your muscles and nerves to respond surely and quickly to a threat to balance means you will be better able to protect yourself from falling.

There are two types of balance – when you are standing still (often called static balance) and when you are moving (often called dynamic balance). You need to improve both types of balance to help prevent falls.

### **LiFE principles of balance training**

To improve your balance you have to practise a challenging balance activity. To make balance gains you need to keep progressing to a more challenging level.

#### *The principles of improving your balance are:*

- reducing your base of support
- shifting weight and moving to the limits of stability
- stepping over objects.

#### **Reducing your base of support**

Your base of support is all the parts of you that are in contact with the floor or something that is holding you up. For example, if you are standing and holding onto a table, your hands and feet are your base of support. As you reduce your base of support, you increase the difficulty of balancing. For example, standing with your feet apart is standing with a wide base of support; standing with them together is a narrow base of support. It is more challenging for your balance to stand with a narrow base of support.

You can reduce your base of support and challenge your balance while standing or walking.

#### **Shifting weight and moving to the limits of stability**

For good balance you need to be able to keep your stability when you shift your weight as you move. When you shift your body weight to just short of where you lose your balance you are moving to the limits of stability. If you can smoothly and safely shift your weight in either a sideways or forwards-and-backwards di-

### Balance training

rection then you will be less likely to lose your balance. It is important to be able to maintain your balance when you are moving about.

Shifting your weight from foot to foot becomes more difficult as you decrease your base of support. You can make moving to the limits of stability more difficult by decreasing your base of support or by holding at the limit for a longer time.

Being able to shift your weight from one foot to the other is an important part of walking.

### **Stepping over objects**

Safely and confidently stepping over objects is important when dealing with obstacles like gutters and uneven surfaces. You need to be able to go forwards and backwards as well as side to side.

## **LiFE balance activities**

A number of balance activities have been developed for the LiFE program. These activities relate to the principles of balance training.

The LiFE balance activities are:

- 1. tandem stand**
- 2. tandem walk**
- 3. one-leg stand**
- 4. leaning side to side**
- 5. leaning forwards and backwards**
- 6. stepping over objects – forwards and backwards**
- 7. stepping over objects – side to side.**



*The tandem walk was a real challenge. I thought I would be able to do this in about one week. I got grumpy when I still had to hold on after a couple of weeks.*

*It will probably take a bit of a while yet, but I'm going to do it. I am determined to be able to do the tandem walk down the hall without having to hold on. (Robert)*



### ***1. Tandem stand***

This is when you stand with one foot in front of the other – ‘heel to toe’. This gives you a very narrow base of support. This challenges your balance.

Tandem standing is most safely done where you have support available. For example, while at the kitchen or bathroom bench, or while standing in the queue at the supermarket with the shopping trolley.

Whenever you are standing at a bench or a counter you should try to do a tandem stand. If you cannot do a tandem stand safely you can begin with your feet slightly apart and work up to a tandem stand.

You can make tandem standing even more of a challenge by shifting your weight from one foot to the other while in this ‘heel-to-toe’ position.

### ***2. Tandem walk***

This is ‘heel-to-toe’ walking. You should only try this where you have support available. Hallways, dining tables and kitchen benches are all good places to practise this activity, because you can use the walls or benches to support yourself as needed.

Whenever you walk along your hallway or past the dining table you should try a tandem walk.

### ***3. One-leg stand***

You stand on one leg while holding the other leg off the floor. You should have support available as you should for tandem standing. This activity is important because a normal part of the walking process is being able to balance on one leg as the other leg swings past to take a step forward. If you improve your ability to support yourself on one leg you will help improve your stability in walking.

You can try standing on one leg while cleaning your teeth, brushing your hair and during other activities where you are at a bench. Use the bench for support as needed.

### ***4. Leaning side to side***

Stand with your weight evenly distributed on both feet. Shift your body weight so that it is mostly on one foot and hold for a few seconds (if possible) at the limit of the shift. As you shift the weight over to one foot you are moving to the limit of your stability. You should feel like more of your body weight is going through the leg and foot that you are shifting your weight to. You shouldn’t bend at the waist.

Once you finish with one leg, shift the weight to the other foot.

### ***5. Leaning forwards and backwards***

Stand with your weight evenly distributed on both feet. Shift your weight forward onto your toes without losing your balance, and hold at that point for a few seconds. Then shift your weight backwards onto your heels and hold there for a few seconds.

You should try to have a wall behind you or a bench in front of you so that should you overbalance you have support.

This activity is more difficult than it looks. It is a very small (and subtle) movement. You are trying take your weight forward, but not bend forward at the waist.

### ***6. Stepping over objects – forwards and backwards***

This activity is like doing a ‘high step’. You concentrate on lifting your leg up and over. You should also concentrate on lifting the leg that is following and make sure that you lift it up and over as well. As you lift the leg that is doing the stepping you will need to balance on the leg that you are standing on. When you have ‘stepped over’ forwards you should try to do it backwards. You can use support to start with if needed. You should aim to be able to do it without support.

The high step takes longer than a normal step and makes your supporting leg work harder to balance.

A good place to practise this is where there is a change in floor surface covering, for example, between the kitchen tiles and the dining room carpet. You can pretend that it is an obstacle that you need to step over.

You can make this activity more challenging by actually putting something on the floor that you have to step over. This might be an empty cereal box or a small pillow. By putting the object on the floor you will need to practise a higher step. This challenges the balance of the supporting leg. If you put something on the floor you need to remember to pick it up so that you don’t trip over it later.

By practising both forward and backward directions, you will improve your ability to negotiate obstacles when you are in a real situation.

### ***7. Stepping over objects – side to side***

This is similar to the ‘stepping over objects – forwards and backwards’ activity but in this one you are going to practise stepping over in a sideways direction. It is performed in the same manner as stepping over forwards and backwards, but you will be stepping sideways instead. The supporting leg does the balancing, but it works the muscles in a different way to the forward and backwards activity. This can be done in similar places to where the ‘stepping over objects – forwards and backwards’ activity can be done.

You can once again make this activity more challenging by putting an obsta-

## Balance training

cle on the floor to step over.



## Balance activities

## BALANCE ACTIVITIES

- photos
- instructions
- tips
- changing habits.

### What and when?

Balance activities need to be closely related to real life movements. You need to think about how you can incorporate increasingly challenging balance activities into your regular routine. This would include:

- daily activities (for example, showering, bathroom routines, dressing)
- household activities (for example, cooking, dusting, cleaning, washing, yard work, painting, washing the car)
- leisure activities (for example, gardening, dancing, bowls, darts, while reading and watching TV).

### *1. Tandem stand*

#### Reducing your base of support



*Tandem stand.*



*Correct foot placement for tandem stand.*

## Instructions

- Put the heel of one foot directly in front of the toe of the other.
- Swap the foot that is in the front.

### ***Tips***

---

Use support as needed from:

- hands
- tummy or hips
- knees.

## Ideas of possible daily activities for doing the ‘tandem stand’ activity

Try tandem standing:

- At the kitchen bench while:
  - ▶ waiting for the kettle to boil
  - ▶ making toast
  - ▶ heating food in the microwave.
- At the bathroom sink while:
  - ▶ cleaning your teeth
  - ▶ combing your hair.
- Other places while:
  - ▶ waiting in a queue
  - ▶ waiting at the bus stop or train station
  - ▶ waiting for the elevator
  - ▶ waiting for the computer to start up

## Balance activities

- ▶ watching TV
- ▶ talking on the telephone.

### Safety note

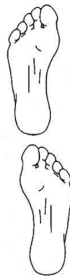
Make sure that you have the necessary support readily available.

## 2. Tandem walk

### Reducing your base of support



*Tandem walk with support.*



*Correct foot placement for tandem walk.*

## **Instructions**

- Walk heel-to-toe.
- Use a rail, bench or wall as support.
- Look at the floor if it helps you to balance.
- As you improve try to look straight ahead.
- Gradually decrease the amount of support you get from your hands.

## ***Tips***

---

- Try to get good foot placement.
- It is better to have correct foot position and be slow than be fast and have poor foot placement.
- Aim to walk slowly and with control.

## **Ideas of possible daily activities for tandem walking**

Try to tandem walk:

- next to the kitchen bench
- along the hallway
- along the side of the house
- from the front of the car to the back of the car
- close to the wall from the kitchen to the lounge
- close to the wall from the bathroom to the bedroom
- next to the rail along the verandah
- next to the dining room table.



Balance activities  
**3. One-leg stand**

**Reducing your base of support**



*Standing on one leg waiting for the kettle to boil, using fingertips for support.*

**Instructions**

- Stand on one leg.
- The position of the other leg can be varied.
- Support can be from hands, fingertips, trunk or the other foot.
- Support can vary depending on what you are doing.

**Ideas of possible daily activities for doing a one-leg stand**

Stand on one leg while:

- waiting for the kettle to boil
- heating food in the microwave
- waiting in a queue at the supermarket or bank
- waiting at the bus stop or train station
- cleaning your teeth
- making your lunch.

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#### ***4. Leaning side to side***

##### **Shifting weight and moving to the limits of stability**



*Starting position: feet apart and flat on the floor. Body neutral.*

## Balance activities



*Lean to the left as far as possible by shifting weight onto the left foot.*

### Instructions

- Stand with your feet apart and flat on the floor.
- Shift your weight onto one foot and lean as far as you can without losing your balance.
- Keep both feet on the floor.
- Feel the weight more on one foot than the other.
- Hold for a few seconds at the end of the movement.
- Do not bend at the waist.
- Keep your back straight.
- Shift your weight and lean to the other side as far as you can.

### ***Tip***

---

Do the activity near a wall or bench or doorway that you can hold if you need support.

Lifestyle-integrated Functional Exercise (LiFE) program to prevent falls

## **Ideas of possible daily activities for doing the ‘leaning side to side’ activity**

Shift weight from side to side while:

- watching TV
- waiting for the kettle to boil
- heating food in the microwave
- waiting at the bus stop or train station
- waiting in line at the supermarket or bank
- cleaning your teeth or brushing your hair
- talking on the telephone.

### ***5. Leaning forwards and backwards***

#### **Shifting weight and moving to the limits of stability**



*Starting position: feet apart and flat on the ground.*

## Balance activities



*Shift weight forwards onto your toes and keep your heels on the ground. Weight should be felt more on the toes.*

## Lifestyle-integrated Functional Exercise (LiFE) program to prevent falls



*Shift weight backwards onto your heels and keep your toes on the ground. Weight should be felt more on the heels.*

### Instructions

- Start with your feet apart and flat on the ground.
- Shift your weight forwards onto your toes; keep your heels on the ground.
- Keep your trunk straight; don't bend at the waist.
- You should feel the weight more in the toes as you lean forwards.
- Shift your weight backwards into your heels, keep your toes on the ground.
- As you lean backwards you will feel the weight more in the heels.
- Lean as far as possible without losing your balance.

### Tip

When shifting weight backwards have support ready.

### Ideas of possible daily activities for doing the 'leaning forwards and backwards' activity

Have support readily available as you shift weight forward and backwards while:

#### Balance activities

- watching TV
- waiting for the kettle to boil
- waiting for heating food to heat in the microwave
- waiting at the bus stop or train station
- before and/or after dressing in the morning, (you can use your reflection in the bedroom mirror to guide you)
- talking on the telephone.

### ***6. Stepping over objects – forwards and backwards***



*Stepping over the join between the lino and carpet using hand support.*



*Stepping over an obstacle on the floor using hand support.*

## **Instructions**

- Lift your leg high.
- Step forwards with one foot and then follow with the other.
- Then step backwards.
- Use support as needed.
- Look at the ground if it helps with balance.

## ***Tips***

---

- Doorways are a good place to start this activity.
- You can practise stepping over the edge of the carpet.
- Try to use something light as an obstacle.
- If doing this in a walkway don't leave the object on the floor. Instead, squat to pick it up: you will be doing two activities in one.



**Ideas of possible daily activities for doing the ‘stepping over objects – forwards and backwards’ activity**

Step forwards and backwards over:

- the lino–carpet join in a doorway
- a sponge or cleaning cloth
- the doorway threshold as you walk in and out of the bathroom or laundry
- an object accidentally dropped on the floor, for example, a pen or hanky. Remember to bend your knees to pick it up after you have stepped forwards and backwards over it. Use support as needed.

***7. Stepping over objects – side to side***



*Stepping sideways over join between the lino and carpet using hand support.*



*Stepping sideways over an object on the floor using hand support.*

## Instructions

- Lift your leg high.
- Step sideways in one direction with one foot and then follow with the other.
- Then step back in the other direction.
- Use support as needed.
- Look at the ground if it helps with balance.

### ***Tip***

---

After finishing the activity, don't leave the object on the floor. Instead, squat to pick it up: you will be doing two activities in one.

## Ideas of possible daily activities for doing the 'stepping over objects – side to side' activity

Step sideways over:

- the lino or carpet join in the doorway
- a sponge or cleaning cloth

#### Balance activities

- the doorway threshold as you walk in and out of the bathroom or laundry
- an object accidentally dropped on the floor, for example, a pen or hanky. Remember to bend your knees to pick it up after you have stepped forward and backwards over it. Use support as needed.



More ways to challenge your balance

## MORE WAYS TO CHALLENGE YOUR BALANCE

### **Reduce the support from your hands**

Decreasing the amount of support that you rely on from your hands will challenge your balance. You can decrease your hand support gradually in the following way:

- Hold on with two hands.
- Hold on with one hand.
- Use intermittent support – use support on and off or for part of the time.
- Do not use any hand support.

You need to let go and keep up the flow.

### **Combine balance principles**

You may be able to combine one or more of the balance principles to challenge your balance. For example, when you are able to shift your weight from foot to foot easily with your feet wide apart, you can make it more difficult by bringing your feet closer together and so reducing your base of support.

### **Advanced activities to further challenge your balance**

When you are able to do the above activities with no support and remain balanced you can further challenge your balance by:

- Closing your eyes.

Closing your eyes makes it harder to balance because we rely on sight to balance.

- Doing something else at the same time.

For example, talking to someone else, holding or carrying something, or anything that means your brain is trying to do more than one thing at the same time.

- Doing a mentally demanding activity.

For example, counting backwards by fours from 100. This makes it harder to balance because our brain finds it difficult to work on two things at the same time.

Lifestyle-integrated Functional Exercise (LiFE) program to prevent falls  
**Examples of ways to increase the challenge to your balance**

**Example 1**

Tandem stand and shifting weight forwards and backwards: reducing base of support and shifting weight forwards and backwards



*Tandem stand and shifting weight forwards and backwards.*

**Instructions**

- Put the heel of one foot directly in front of the toe of the other.
- Shift your weight from the back foot to the front foot and back again.
- Keep shifting your weight from foot to foot.
- Swap the foot that is in the front.
- Use support as needed.

**Example 2**

Leaning side to side while doing another activity: shifting weight and moving to the limits of stability and doing something else at the same time

### More ways to challenge your balance



*Leaning side to side while talking on the telephone.*

### **Example 3**

Tandem walk with eyes closed: reduced base of support with eyes closed

Lifestyle-integrated Functional Exercise (LiFE) program to prevent falls



*Tandem walking with eyes closed, using hand to support. With improvement this could be made more challenging by decreasing support.*





## Strength training

## STRENGTH TRAINING

Most people lose 20 to 40 per cent of their muscle mass by age 80. This is partly to do with disuse – doing less and less physical activity. Anyone at any age can increase muscle strength.

Improving ankle, knee and hip strength will greatly reduce your chances of falling. It will also improve your gait, increase your ability to do more physical activity, and help you to maintain your independence.

To strengthen your muscles, you need to make them work harder. This is called loading. If you load muscles they will get stronger.

Instead of avoiding activities or simplifying things to make life easier, look for ways you can make your muscles work harder. This will gradually strengthen the muscles.

In this program you will usually be using your body as the weight to load your muscles.

### Which muscles need to be strengthened to help prevent falls?

The muscles that are most important for preventing falls are the muscles in your legs.

The muscles around the **ankle**, including:

- the muscles in the front of the shin – the dorsiflexors. These muscles lift your toes and feet up and this helps your feet to clear the ground and avoid shuffling.
- the muscles in the calf – the plantarflexors. You use your calf muscles to push off with your toes when you walk.

The muscles around the **knee**, including:

- the muscles at the front of the knee – the quadriceps. These muscles are important in standing up and sitting down, climbing stairs and squatting.
- The muscles at the back of the knee – the hamstrings. These muscles are important for controlling the knee during walking.

The muscles around the **hip**, including:

- the muscles at the side of the hip – the hip abductors. These muscles are important for keeping the leg and hip stable in standing and walking.
- the muscles in the buttocks and lower back – the hip extensors. These muscles are important for keeping the leg and hip stable in standing and walking.

## Strength training

In the LiFE program you will be thinking about your daily tasks and routines and ways that you can strengthen your muscles while doing these activities.

## **LiFE principles of strength training**

The main principle of strength training is that you need to load your muscles.

The harder your muscles work, the stronger they will get. In the LiFE program you will generally use your body as the weight and work against gravity, or use objects around your home to provide resistance.

### ***How to load your muscles***

You can load muscle in a number of ways. You can:

- Increase the number of times that you use a muscle, for example, going up and down stairs more often.
- Move slowly. Moving a weight slowly loads your muscles more than moving the same weight quickly. For example, sitting down slowly makes your muscles work harder than ‘plonking’ into a chair.
- Use fewer muscles to move the same weight. For example, standing up from a chair without using your hands makes your leg muscles work harder.
- Increase the amount of weight you have to lift or move.

You need to look for ways that you can load your muscles in your daily routines instead of looking for ways to lessen the load.

## **LiFE strength activities**

For the LiFE program, loading your muscles has been divided into a number of different activities to make it easier to include them as part of your daily routine.

The activities involved in loading your leg muscles in the LiFE program are:

### **1. bend your knees**

**2. sit to stand – normal chair and low chair**

**3. on your toes – standing and walking**

**4. on your heels – standing and walking**

**5. up the stairs**

**6. walk sideways**

**7. tighten muscles.**

### ***1. Bend your knees***

Bend at the knees every time you do something when you would normally bend your back. For example, when you pick something up or get things out of a cup-

Lifestyle-integrated Functional Exercise (LiFE) program to prevent falls board below waist height you should bend your knees.

Partial and full squatting is an easy way to improve and maintain your knee strength. Partial or full squat whenever you can.

- The slower you bend your knees, the more you load the muscles.
- The further you bend your knees, the more you load the muscles.
- If you hold the knees bent for longer it makes the muscles work harder.

## ***2. Sit to stand – normal chair and low chair***

You can strengthen your leg muscles by standing up from a chair while not using your hands and not rocking. The lower the chair the harder your leg muscles can be made to work.

- Try to stand without using your hands. If you need to use your hands, try to decrease the amount of push that you get from your hands.
- **Slowly** stand up without using your hands – this works the muscles harder than doing it quickly.
- Avoid rocking to get yourself out of the chair. Concentrate on using your legs to lift you up.
- When you sit down try not to drop or ‘plonk’ into the chair. By keeping control you work the muscles harder. It also helps your balance.

## ***3. On your toes – standing and walking***

Stand onto your toes. Walk on your toes.

- Standing up onto your toes is a very good way to strengthen your calf muscles. When doing a task above waist height, lift up onto your toes.
- The longer you can hold the ‘on your toes’ position, or the more times you can go ‘on your toes’, the stronger your calf muscles will get.
- Walking on your toes improves your balance while also strengthening your calf muscles. The more you do it, the further you will be able to go. At first you might need to use support, but as your muscles get stronger and your balance gets better, you should decrease the amount of support that you need.

## ***4. On your heels – standing and walking***

Stand on your heels. Walk on your heels. Standing and walking on your heels will strengthen your shin muscles. It is also a good balance activity.

- Your toes should be off the ground.
- The longer or the more times you can be ‘on your heels’, the stronger your shin muscles will get.

#### Strength training

- You will need support at first because it is hard to balance, but as your muscles get stronger and your balance improves it will get easier.

### ***5. Up the stairs***

Using stairs is a good way of strengthening the knee muscles.

- Concentrate on using your legs rather than pulling up with your hands.
- Gradually try to decrease the amount of support that you use. For example, if you hold on to the rail very firmly, then try to lighten your grip to use the rail only for support. If you use the rail lightly, try to let go altogether or use fingertip support only.
- Go up the stairs slowly as this loads your muscles.
- Look for ways you can increase the number of stairs that you climb.
- Try to go up stairs two at a time – this makes you lift your weight through a greater range.

### ***6. Walk sideways***

Most of the time we move our bodies in a forward / backward direction. By moving our bodies sideways we can strengthen our hip abductors.

### ***7. Tighten muscles***

By tightening muscles that are resting you are increasing the load on them and strengthening them.

When you are sitting you can work on strengthening the gluteal muscles in your bottom, the quadriceps muscle around the knee, as well as the muscles around the ankles.



## Strength activities

## STRENGTH ACTIVITIES

- photos
- instructions
- tips
- changing habits.

### ***How to make strength training a part of your daily activities***

You need to think about how you can incorporate strengthening activities into your:

- daily activities (for example, showering, bathroom routines, dressing)
- household activities (for example, cooking, dusting, cleaning, washing, yard work, painting, washing the car)
- leisure activities (for example, gardening, dancing, bowls, darts, while reading and watching TV).

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***1. Bend your knees***



*Partially bend the knees instead of bending the back. Slightly bend the knees to get to the table.*



## Strength activities



*Bending knees to get socks out of the bottom drawer.*

### Instructions

- Bend your knees instead of bending your back.
- You don't have to do a full squat – partial squatting is good for building up strength.

### Tip

Move everyday items so that you have to bend your knees to reach them.

### Ideas of possible daily activities for the 'bending your knees' activity

Bend your knees when:

- picking up the TV remote off the coffee table
- getting things out of low cupboards in the kitchen
- putting things away in the kitchen cupboards
- getting your socks and underwear out of the drawer
- picking up a pen or hanky that you have accidentally dropped on the floor, use support as required

Lifestyle-integrated Functional Exercise (LiFE) program to prevent falls

- opening or closing any drawer or cupboard that is below waist height.

As you get better at this activity you might move some regularly used items so that you have to bend your knees to get them. This could include:

- putting the dishwashing liquid in the cupboard below the sink
- putting the toothpaste in the vanity
- moving the washing powder to a lower shelf.

Strength activities

**2. Sit to stand – normal chair**



Step 1



Step 2



Step 3

*Standing up from a normal chair.*

**Instructions**

- Bottom should be at the front of the chair.
- Your feet should be underneath you.
- Don't rock to stand up.
- Push up using your legs to do the work.

- Lifestyle-integrated Functional Exercise (LiFE) program to prevent falls
- Aim to stand slowly and with control.

### ***Tips***

---

- Stop to get your balance once you are standing.
- Try to decrease the support you use with your hands – your leg muscles will get stronger.

### ***Sit to stand – low chair***



*Use hands for support to start but gradually try to decrease the support you use from your hands.*

### **Ideas of possible daily activities for the ‘sit to stand’ activity**

Whenever you stand up, concentrate on standing up using your legs with as little support from your hands as is safe.

You can repeat the activity to build more strength.

Stand up and sit down:

- each time you sit down at the kitchen or dining room table stand up and sit down again
- each time the ads come on when you are watching your favourite TV program
- every time you finish a chapter in a book
- every time you finish reading a article in the newspaper
- if you have been sitting for a long time while knitting or sewing, reading or waiting.

### Strength activities



Step 1



Step 2



Step 3

*Standing up from a low chair without using hands for support.*

### ***3. On your toes – standing***



*Standing on your toes using fingertips for support.*

#### **Instructions**

- Start with hand support as needed.
- Gradually decrease the amount of support.

#### **Tip**

Whenever you reach above waist height go onto your toes even if you don't need to do it to be able to reach what you need.

## Strength activities



*Standing on your toes when reaching above waist height.*

## ***On your toes – walking***



*Walking on your toes.*



*Walking on toes in the kitchen, using the bench for support.*

### **Instructions**

- Walk on your toes.
- Keep your heels off the ground.
- Start with support.

### **Ideas of possible daily activities for the ‘standing and walking on your toes’ activity**

**Stand** on your toes:

- each time you turn the light switch on and off
- to get your coat off the coat hook
- to get your shirt/blouse out of the wardrobe
- to reach up to get the laundry powder
- to get cups or glasses out of the kitchen cupboard.

**Walk** on your toes:

- next to the kitchen bench
- along the hallway to the front door
- next to the rail on the verandah



#### Strength activities

- around the kitchen or dining room table
- from the bedroom to the kitchen close to the wall
- from the lounge to the kitchen close to the wall.

### ***4. On your heels – standing***



*Standing on your heels.*

#### **Instructions**

- Go onto your heels.
- Use hand support as needed.
- Gradually decrease the amount of support.

#### ***Tips***

---

- This is a difficult activity to do without support. You will still strengthen your muscles if you use support.
- This is also a balance activity.

Lifestyle-integrated Functional Exercise (LiFE) program to prevent falls



*Standing on heels while waiting for the kettle to boil.*

Strength activities  
***On you heels – walking***



*Walking on heels using the kitchen bench for support.*

**Instructions**

- Walk on your heels.
- Keep your toes off the floor.
- Use support as needed.

### ***Tips***

---

- This is a difficult activity to do without support. You will still strengthen your muscles if you use support.
- This is also a balance activity.

### **Ideas of possible daily activities for standing and walking on your heels**

**Stand** on your heels:

- each time you turn the light switch on and off
- while waiting for the kettle to boil
- while waiting for the toaster to pop
- while waiting in a queue, though making sure you have support readily available
- when the ads come on while watching TV.

**Walk** on your heels:

- next to the kitchen bench
- along the hallway to the front door
- next to the rail on the verandah
- around the kitchen or dining room table
- close to the wall, from the bedroom to the kitchen
- close to the wall, from the lounge to the kitchen.

Strength activities  
***5. Up the stairs***



*Walking up the stairs using firm support –  
holding on tightly to the rail.*

Lifestyle-integrated Functional Exercise (LiFE) program to prevent falls



*Walking up the stairs using light support –  
using less hand support on the hand rail.*



*Walking up the stairs using no hand sup-  
port.*

## Instructions

- Use your legs to lift you up the stairs rather than pulling up with your hands.
- Decrease the amount of support that you use.

### ***Tip***

---

Look for stairs instead of avoiding them.

## Ideas of possible daily activities for doing the ‘up the stairs’ activity

Walk up the stairs more often.

- If you have stairs at home, use them more frequently during the day or week.
- Make more trips up stairs you have at home.
- Whenever you are out shopping, visiting friends and family or going to appointments take the stairs instead of the lift.
- Change where you walk to include walking up a flight of stairs when you are doing your shopping, going to the movies, attending meetings or visiting friends and family.

## **6. *Walk sideways***



*Sideways stepping using the kitchen bench for support.*

### **Instructions**

- Swing leg to the side and step.
- Bring the other leg to meet it.
- Keep hips facing forwards.



### Strength activities

- Use support if needed.
- Change direction and use the opposite leg.

### **Ideas of possible daily activities for the ‘stepping sideways’ activity.**

Step sideways:

- next to the kitchen bench
- along the hallway to the front door
- along the verandah next to the rail
- between the lounge and bedroom close to the wall
- around the bed
- around the kitchen or dining room table
- along the pathway at the side of the house close to the fence.

### ***7. Tighten muscles – move ankles***



*Up on your heels while sitting.*

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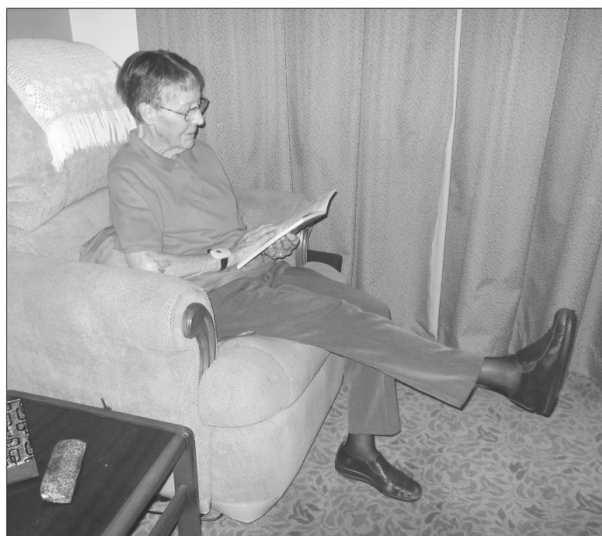


*Up on your toes while sitting.*



*Up on your toes while having morning tea.*

Strength activities  
***Tighten muscles – bend and straighten knees***



*Straightening the knee while reading.*

Lifestyle-integrated Functional Exercise (LiFE) program to prevent falls  
***Tighten muscles – tighten buttocks***



*Tightening buttocks while sitting – nobody will know that you are exercising.*

**Ideas of possible daily activities for doing the ‘tightening muscles’ activity**

Move ankles:

- whenever you are sitting down reading the newspaper or watching TV
- having your morning or afternoon tea
- waiting for an appointment

#### Strength activities

- waiting for the bus or train to arrive
- when you wake up in the morning and are still lying in bed
- lying in bed at night if you are unable to sleep
- sitting on the edge of the bed before you stand up in the morning
- while you are sitting on the train or bus.

#### Bend and straighten knees:

- while you are sitting watching TV
- while you are sitting reading the newspaper or doing the crossword
- when you are at the computer
- when you are sitting at the table
- before or after you have eaten breakfast, lunch or dinner
- while you are waiting at the bus stop or train station.

#### Tighten buttocks:

- Whenever you are sitting down or standing up. Nobody will know that you are exercising.



Changing your life with LiFE

## CHANGING YOUR LIFE WITH LIFE

Adding the balance and strength activities into your life is a matter of changing the way you do things. Changing the way we do things and our habits is not easy. There are things you can do to help you to remember to do the activities in the program.

Start with just a few activities, then when you begin to remember to do these routinely you can start to add more. You might need to use some prompts to remind you. Think about when and where you are going to start doing a LiFE activity. If you write this down it may help you to remember or you might prefer other prompts. For example, placing a cup somewhere it isn't usually placed such as on a higher or lower shelf can be a prompt to bend or stand on toes when getting something out from a shelf.

### **Help yourself to remember to do the activities**

Here are some ways to remind yourself to do your activities.

- Link the balance and strength activities with regular daily tasks.

The task becomes the reminder, for example, doing the washing up reminds you to do a tandem stand.

- Come up with your own ideas for balance and strength routines.

When **you** think of the ideas you are more likely to add them into your life. The therapists are there to help, but if you gradually work in your own ideas you are much more likely to continue doing the activities for longer.

- Look for opportunities to do the LiFE balance and strength training activities.

For example, don't see stairs as a problem but as an opportunity to get stronger legs.

- Use your daily tasks as the prompt to remind you to do an activity.

Some examples might be: cleaning your teeth reminds you to lean side to side; getting a morning cup of tea reminds you to tandem walk to the kitchen.

- Change where you put things.

For example, you might move the toothpaste off the top of the vanity and keep it in the cupboard below the basin so that you have to bend

Lifestyle-integrated Functional Exercise (LiFE) program to prevent falls  
your knees to get it twice each day to clean your teeth.

The more you do the activities the more they become part of your habitual way of doing things. You need to do them often and keep progressing.

## **Recording your activities**

In the early stages of the program it can be difficult to remember to do the activities. A useful method to help you to remember is to write down what you plan to do and what you were able to do. When you write it down it helps to reinforce the activities.

To make this easier for you there are some LiFE activity recording sheets available.

The activity recording sheets have all the balance and strength activities on them. They have space for you to write down which daily tasks you could or will include the activity in. They also allow you to record which days you were able to do the activities on.

The Activity Planner is a recording sheet for you to plan which activity you are going to do, the day(s) when you will try to do it and the number of times you were actually able to do it. In the early stages of the program it can be helpful to count how often you do an activity so that you can gradually increase the amount that you do.

Using these recording sheets, at least the first few weeks, is a very good way of helping you to remember to do the activities.

These sheets are available from the trainer's manual.

If you are not sure about any of the activities check with your therapist first.

## **Increasing your physical activity**

This program will make it easier for you to become more physically active. As your strength and balance improve you should make the effort to increase the amount of physical activity that you do.

You can enhance your physical fitness by being more active in your daily routines. The following are some examples:

- Change the TV channel at the TV instead of using the remote.
- Walk all the way to the traffic lights to cross the road.
- Park slightly further from the shops so that you have to walk.
- Walk to the shops instead of driving.
- Get off the bus a stop early and walk the rest of the way.
- Use the stairs when you are able.
- Walk to the neighbours' instead of using the telephone.
- When you have visitors suggest a walk outside before having tea or a meal.
- Lift and carry the groceries yourself.



- Stand to do the ironing and fold the clothes.

Look for ways to make changes to the amount of activity that you do.

*When I went to the shops I decided to try parking my car a bit further away. I found a nice shady spot down the end of the car park.*

*So, I walk further to the shops, I push the trolley further back to the car and I have to push the trolley further back to the shops again. I used to think that this was terrible – but now I think of it as my exercise. When I get into the car it is nice and cool because it has been parked in the shade and I didn't have to fight for a car space. But I think if it is raining or really cold, I will still look for a spot closer to the shops.*

*Just by doing the program I found I was doing more physical activity. Instead of an extra trip to the car to get the shopping being a chore – it was now a chance to add in more of the activities. (Dorothy)*

This is the end of the first phase of the LiFE balance and strength program. The LiFE activities have all been designed to help reduce your chance of falling and to keep you active.

You have learnt the principles behind improving your balance and strength.

You have learnt how to incorporate balance and strength activities into your everyday tasks and routines.

You have changed some of your habits by thinking about what you do and how you do it.

You have found opportunities to include balance and strength activities into your daily routine.

You should keep trying to find ways to challenge yourself.

If you think you have mastered these challenges there is a second volume to give you more ideas on how to keep challenging yourself.



Stories and quotes

## STORIES AND QUOTES

As we have worked with people on the program many of them give us some fabulous stories and quotes. We thought we should share some of them. They may encourage you. They may make you laugh. They may make you think. Hopefully they will make you continue to work on your balance and strength. If they can do it so can you.



### **Doris**

Doris is a slightly built frail lady who lives on her own. She really ‘got’ the program. She had polio as a child and hip replacements a few years ago. Doris says that she wished she had done LiFE straight after her hip replacement. It would have made all the difference to her independence. She believes it has made a huge difference to her now.

Once she got the idea of LiFE she found lots of opportunities to include the LiFE activities into her daily routine. She made some small changes to where she put things to provide more opportunities to do the activities. Some of her favourite changes were putting her fruit bowl on a lower table so every time she picked up a piece of fruit she had to squat down. She found the stepping over objects and standing on one leg doing different things really helpful, and she made lots of opportunities to do these activities.

She doesn’t drive and relies on public transport. Volunteer work was important in her life and she had to catch the bus to do this. She was thinking about giving it up because she was afraid of the steps on the bus. Now because of the program she has the confidence to catch the bus as she can now manage the steps.

Lifestyle-integrated Functional Exercise (LiFE) program to prevent falls  
She was facing doing less but now is doing more.

She was starting to cut back on things to be safer. Now her attitude is, 'I need to be aware of safety but I need to train harder to be able to do the things I want to do'. Doris has not only mastered the LiFE program, she understands the philosophy of upgrading and the personal benefits of the program.

## **Enid**

Enid has lived alone since she lost her husband two years ago. She has had a knee replacement and has had some pressure from her GP, family and others to think about a retirement village 'to make it easier for her'. This would mean leaving her home and her enormous garden full of cymbidiums and native orchids that were planted by her husband.

She took to the program really well and saw the multiple levels of her home as a chance to get stronger rather than an obstacle that would force her out of her home.

She can now confidently walk up and down her stairs without holding on for support, while she knows to hold on if she is tired.

Enid's garden has some rock steps that lead onto a nature reserve. It had been suggested that these should be redone in concrete. Enid preferred the natural look of the rock steps as they too were a connection to her husband. Now she is able to safely manage them.

When Enid and the 'other grandmother' were invited to their grandchild's engagement party, Enid was the only one who could attend because only she could manage the stairs. Her family attributed her strength to the LiFE program.

Stories and quotes



*Enid in her garden before LiFE.*



*Enid in her garden after LiFE.*

## **Harry**

*As I walked through the house I would hold on to the walls and doorways.*

*I would reach for tables or chairs as I went past them. Once I started practising the balance activities – I realised that I didn't need to reach for them – if I concentrated more on my walking and less on looking for something to grab for I actually walked better.*

## **Robert**

*When I went out I would always take my walking stick. Now I really don't need it much. I thought my balance was pretty good until I did the test – then I realised that it wasn't nearly as good as I had thought.*

## **Clive**

*Both of my knees have arthritis in them and I thought if I didn't do anything I would be 'saving' my knees and they would last longer. Now I know that I have to do something to make them stronger or they will get weaker and I will be able to do less.*

*What I didn't realise was that when I close my eyes my balance would change so much. During the testing when I had to shut my eyes I was really shocked at how poorly I could balance. Having to close my eyes was a real eye opener!*



Notes

## NOTES

Here is space for you to make some of your own notes about the activities. You can include ideas about where and how you can do your activities. You might also include where you might be able to make changes to your daily routine, habits, or where you keep things in order to encourage you to do the activities.

### **Balance activities**

#### **Tandem stand**

e.g. I tandem stand when I am waiting for the kettle to boil in the morning.

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#### **Tandem walk**

e.g. every morning I tandem walk along the hallway to the front door to get the newspaper.

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#### **One-leg stand**

e.g. I stand on one leg while I am waiting for the taxi to arrive.

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### **Leaning side to side**

e.g. I shift my weight from side to side while waiting for the kettle to boil.

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### **Leaning forwards and backwards**

e.g. I lean forwards and backwards while I am waiting for my dinner to heat in the microwave.

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### **Stepping over objects – forwards and backwards**

e.g. As I walk in and out of the laundry I step forward and backward over the join between the carpet and the tiles.

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### **Stepping over objects – side to side**

e.g. I step sideways over the join between the carpet and the lino as I go from the dining room to the kitchen.

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Notes

## Strength activities

### **Bend your knees**

e.g. I bend my knees each time I open the drawer in the bathroom vanity. I have moved the toothpaste to the bottom drawer to remind me to bend my knees.

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### **Sit to stand**

e.g. I try not to use my hands to stand up from the dining room table.

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### **On your toes – standing**

e.g. I stand on my toes in the morning to get my dressing gown off the hook on the back of the bathroom door.

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### **On your toes – walking**

e.g. I walk on my toes along the hallway from the bathroom to the lounge.

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**On your heels – standing**

e.g. I stand on my heels next to the kitchen bench after I have dried the dishes.

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**On your heels – walking**

e.g. When I am going outside to the garden, I walk on my heels along the verandah next to the rail.

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**Up the stairs**

e.g. I make extra trips up the stairs instead of leaving things in a pile at the bottom to take up in one go.

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**Walk sideways**

e.g. I sideways walk from my bedroom to the bathroom when I first get up.

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## **Tighten muscles**

E.g. I move my ankles when I am reading the morning newspaper; I bend and straighten my knees while I am waiting at the bus stop; I tighten and relax my buttocks when I am sitting on the edge of the bed before I get up in the morning.

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- Clemson, L, Fiatarone Singh, M., Bundy, AC, Cumming, R G., Weissel, E, Munro, J, Manollaras, K & Black, D. (2010). LiFE pilot study: a randomised trial of balance and strength training embedded in daily life activity to reduce falls in older adults. *Australian Occupational Therapy Journal*, 57(1): 42–50.

Other LiFE resources available from Sydney University Press:

- *Lifestyle-integrated Functional Exercise program to prevent falls: more challenges for participants*
- *Lifestyle-integrated Functional Exercise program to prevent falls: trainer's manual* (for health professionals only)
- LiFE Assessment Tool.



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